THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LXV. SATURDAY, SEPTEMBER 1, 1894. No. 9.

ORIGINAL ARTICLES.

THE USE AND ABUSE OF ARSENIC IN THE TREATMENT OF SKIN-DISEASES.[1]

BY ISADORE DYER, PH.B., M.D.,
OF NEW ORLEANS, LA.;
PROFESSOR OF DERMATOLOGY IN THE NEW ORLEANS POLYCLINIC; LECTURER AND CLINICAL INSTRUCTOR ON DISEASES OF THE SKIN, MEDICAL DEPARTMENT, TULANE UNIVERSITY; DERMATOLOGIST TO THE CHARITY HOSPITAL; CONSULTING DERMATOLOGIST TO THE EYE, EAR, NOSE, AND THROAT HOSPITAL, ETC.

WHEN Erasmus Wilson so strongly advocated the usefulness of arsenic in the treatment of skin-diseases, without discriminating closely, and only qualified his indorsement with the caution to be employed in its use, he but voiced the enthusiasm which at that time had placed arsenic upon the pedestal that it still tends to occupy. At the time of Biett, Wilson, Cazenave, Schedel, Behrend, and others, the general practitioner had scarcely escaped from the simple classification of skin-diseases into eczema, scrofula, and syphilis, with an occasional inspired diagnosis of psoriasis, herpes, or the like. It is hardly to be wondered at, then, that the general practitioner should welcome a remedy that had found favor with the dermatologists of the time in the very diseases under whose shelter he had found a refuge-diagnosis. Cazenave did not qualify his adjectives when he wrote of arsenic as an heroic remedy, meaning not radical but supreme. Almost every good thing in medicine has found its abuse in its early recognition, and soon a rational measure is made the excuse for enthusiastic excess, and the true value of a remedy is hidden by its indiscriminate usage.

Arsenic has drifted from its essential usefulness, and has become to a multitude of routine practitioners a panacea for all cutaneous affections. At the slightest intimation of a disturbance of the skin there is an echoing response in the physician's mental *vade mecum* of arsenic. In its various shapes and combinations, arsenic is administered for a variety of skin-affections, many of which could in no rational way be influenced by the drug. I have seen typical cases of the parasitic diseases of the skin, even the itch, treated for a long period with arsenic, as if painting the cellar would patch the roof.

[1] Read before the Texas State Medical Association, at Austin, April 25, 1894.

The reaction has come, and it is a rational one at that. Instead of being employed to meet all possible and impossible indications, arsenic can be relegated to specific usefulness in therapeutic measures, and permits only of exceptional variations from its proper sphere. After long study and investigation, Dr. Fox, of New York, in collaboration with other dermatologists in this country, arrived at the conclusion that arsenic was not only of no service in some of the diseases in which it is often administered, but that it did positive harm, not only in the production of additonal trouble in the skin, but by preventing the use of other and better remedies. Moreover, these investigations elucidated the fact that there was no series of cases in which arsenic could be said alone to have produced a cure.

With this kernel of sound meat for our consideration, I feel that a logical discussion of the uses first, then the action and abuses of arsenic, will, in some small measure, carry a germ of the reaction to those of you who have a penchant for arsenic-administration, without knowing just why.

The action of arsenic is twofold—local and general. Topically applied, its action is first of all stimulant and irritant; and if sufficiently brought in contact with the surface it is caustic. Generally, arsenic is a nerve-tonic, acting on the vasomotor centers, and decidedly affects the peripheral nerve-terminations. Its action on the spinal cord is irritant, and an overdose is evidenced by a widespread multiple neuritis.[1] The evidence indicates that small doses check tissue-change and decrease nitrogenous elimination, while large, toxic doses have the opposite effect. Arsenic is a direct stimulant to nutrition. It is alterative.

Upon the skin, the effect of ingested arsenic is much the same as that of the drug when used locally.[2] There may result inflammatory redness, vesicles, pustules, etc., a sensation of heat, burning, pain, and there may be exfoliation of the epidermis in large flakes.

Arsenic is selective of diseased tissue, picking it out and acting on it.[3] The drug is known to exercise its influence almost exclusively upon the epithelium of the skin. Its chief action here is upon the mucous layer of the epidermis. It has a similar action upon the mucous membranes, viz., increasing

[1] Wood, H. C.: Therapeutics and its Practice, 1889, p. 500.
[2] Morrow: Drug-eruptions, 1887.
[3] Crocker: Diseases of the Skin, 1893.

the hyperemia. At first stimulant to the cell-forming elements of the rete, arsenic soon causes such a degree of overwork that the power of cell-production is finally lost, or, as Jamieson[1] well expresses it, it induces in them a premature old age.

In those skin-diseases, then, in which an alterative action is demanded, arsenic is of service. Its stimulant action is indicated when there is a stagnation of the cell-forming element in the rete, or when this element is depressed by a chronic inflammatory process. Just how long and just how far this stimulation can be kept up must be judged from the degree of activity of the cell-production.

Arsenic must find some usefulness in the diseases of the skin of vasomotor origin, whether acute or chronic, and this point should be determined before the drug is advocated or condemned. In deep-seated lesions of the skin, from what we have seen, arsenic is not indicated, and if used, the result would be questionable. Because of the tendency to produce hyperemia, arsenic ought not to be given in acutely inflammatory conditions, which the drug must necessarily make worse. On just the same account it is contra-indicated in the pruritic diseases, because, in itching, the chief underlying condition is hyperesthesia, whether in its common signification of an excessive irritability of the sensory nerves, or in the sense of an excess of an engorgement of sensation.[2] The attendant irritation and subsequent hyperemia make itching persistent, and arsenic would only add to the production of the agony.

It is becoming more and more the practice of dermatologists to treat cutaneous diseases according to their pathology. Subjective symptoms, of course, are met, as in other diseases, but the etiology is investigated, and the treatment based on a pathologic plane.

In the parasitic diseases, the most effective antagonist to the special parasite is selected for use; in the pustular, or the coccogenous diseases, as Hyde has recently called them, antiseptic measures are employed locally, while, internally, anti-pyogenic remedial agents are administered. When there is an acute inflammatory condition in or on the skin, the points of attack, both locally and internally, are through the reduction of the inflammation.

The diseases for which arsenic seems to be especially useful are few. At the top of the list stands psoriasis, then chronic eczemas, and the lichens, with some of the hydroa.

With many dermatologists arsenic is preëminently the essential treatment of psoriasis. According to Brocq, Vidal used arsenic for a long time, to the exclusion of other medication. He administered the drug in large doses for a long period of time, and at the cost of systemic intoxication. In recommending arsenic in chronic psoriasis, Brocq apologizes for its accidents, and warns the physicians to guard against the possible inconveniences of treatment.[1] Pye-Smith commends the use of arsenic in psoriasis, but suggests that it be carried to tolerance, then the dose dropped to the original small dose, and the same method of administration resumed. Duhring says that arsenic is unquestionably of great value in psoriasis, but should be withheld until the disease is settled in its course. Weyl[2] and Anderson,[3] on the other hand, state that the more recent the eruption, the more readily, as a rule, psoriasis yields to arsenic, while chronic and relapsing cases are more rebellious.

It is noticeable that arsenic is of service in some cases of psoriasis, while in others the results are negative. While the etiology of psoriasis is still *sub judice*, and the neuropathic vies with the parasitic and the syphilitic element as causative factors, it is difficult to determine what the reason should be for the discrepancies in the effect of treatment. It must be remembered, however, that psoriasis is a self-limited disease, tending to get well of itself. It recurs periodically and has seasons of recurrence, be it winter or summer, spring or fall. Some cases get well in spite of all treatment, and it is questionable if arsenic plays any particular part in the cure. Few cases of psoriasis are treated internally alone, and the external treatment may deserve the credit. Granting, however, that arsenic is capable of removing the disease in given cases, and fails in others, it must act in the first instance, if the therapy of the drug as acknowledged is correct, through its effect upon the peripheral nervous system first, or by its direct local presence. Its failure to act in one of two apparently parallel cases would indicate that this nervous element was lacking in the case that failed to respond to arsenic.

The pathology of psoriasis gives evidence of cell-exudation and cell-proliferation. There is moderate inflammation, with increased development of the layers of the rete. There is involvement of the papillæ of the corium, and a consequent and enormous increase in the horny cells of the epidermis, from the rapid proliferation of aborted cells from the mucous layer. Auspitz[4] contends that psoriasis is not inflammatory, but due to an anomaly of the process of cornification, or the keratinization of the epithelial cells. The etiology of psoriasis is unknown, the pathology still in some question, and the treatment thoroughly empirical. Arsenic occu-

[1] Diseases of the Skin, 1892.

[2] Bronson: Trans. Amer. Dermatological Association, 1893, p. 38.

[1] Maladies de la Peau, 1892, p. 699.

[2] Ziemssen's Handbook.

[3] Diseases of the Skin, 1887.

[4] Crocker, p. 258.

pies a strong place in the list of remedial agents, and seems to act in overcoming the cell-aborting process of the rete by stimulating a healthy activity, while the general tone of the skin is raised through the stimulating effect of the arsenic upon the peripheral nerve-plexuses and the nerve-endings themselves.

The term lichen really includes but two types of a chronic inflammatory eruption consisting of papules. In lichen ruber acuminatus the papules are conical and tend to coalesce. In lichen ruber planus they are flat, square, angular, and vary in color from pink to violet, although sometimes white. The essential pathologic process in both types begins in the corium. In lichen acuminatus the process is chronic and inflammatory, beginning in and around the hair-follicles, with a consequent enlargement of the sheaths of the follicles through a marked cell-development.[1] In lichen planus the process begins around a sweat-gland, usually in the upper part of the corium, resulting in a subsequent thickening of the rete and enlargement of the papillæ by a down-growth of the inter-papillary processes. The etiology of both, like that of psoriasis, is still an open question. That the distribution is suggestive of a nervous origin, and the itching (paroxysmal in type) suggests a nerve-hyperemia is about all there is in evidence. The indications for treatment are similar to those in psoriasis. In the lichens, however, the general health is profoundly influenced and nervous symptoms are present, notably nervous exhaustion, hysteria, and the like. Arsenic fails here, as in psoriasis, in many cases. In chronic cases the drug is certainly useful. It must act in hastening the shedding of the excessive cell-proliferation by controlling the nerve-terminals.

Chronic eczemas and eczemas of reflex nervous origin form another group of diseases treated by arsenic. It should go without saying that in the acute types of eczema, in which there is edema, infiltration, vesicles, redness, and itching, all evidences of an acute catarrhal condition, arsenic is absolutely contra-indicated. When this condition has thoroughly subsided, leaving behind a marked cellular deposit, with enough swelling, redness, itching, and scaling to determine its eczematous nature, then arsenic may be of service. Stimulation is the essential of the treatment, and by reawakening the dormant cells of the rete, already on their way to connective-tissue degeneration, arsenic finds its usefulness.

Pemphigus and the tropho-neurotic diseases, with bullous eruptions, are favorably affected by arsenic. Nervous lesions are often found associated with pemphigus. These may be either vasomotor or tropho-neurotic; in either case constituting an indication for the administration of arsenic, one of whose properties is an influence upon the vasomotor center.

Dermatitis herpetiformis belongs to the same group as pemphigus, being associated, according to Elliot, Duhring, and others, with some reflex neurotic causation. Shock, grief, anxiety, overwork, pregnancy, and the climacteric in women, are among the important factors. Crocker classes dermatitis herpetiformis with hydroa, although the eruption is varied in type, and presents lesions of papular and urticarial tendency, but more commonly characteristic bullæ. Most observers accept the neurotic factor in the etiology and confess the uncertainty of the pathology. The distribution and the resemblance to the eruptions of pemphigus, with the pronounced symptoms of nervous lesions, evidenced by a variety of manifestations, depression, melancholia not uncommonly, and the tendency to recur under conditions of nervous strain, all point to the neurotic factor. On these grounds, arsenic is given, and is found useful in many cases.

The diseases named form only a small part of a long list of cutaneous affections, but include those conditions which, from a rational standpoint, should yield to the accepted therapy of arsenic. They are but a fraction of the diseases for which arsenic is prescribed.

We have seen that arsenic is positively contra-indicated in acutely inflammatory diseases, excepting those of bullous type, distinctly referred to a vasomotor or nervous origin. Arsenic increases the hyperemia of the skin, and in cases of idiosyncrasy, or under prolonged administration, is capable of producing many local disturbances of the skin. Devergie[1] was the first to announce the fact that cutaneous lesions may be caused by the internal administration of arsenic. These skin-manifestations may take the shape of papular, urticarial, vesicular, erysipelatous, and pustular eruptions. To these may be added an erythematous or scarlatiniform eruption.

According to Hutchinson, herpes zoster may be induced by the ingestion of arsenic, and in subjects predisposed to carcinoma arsenic may act as the determining cause.[2] Boils and carbuncles occasionally result.

Among the inconveniences, as Brocq calls them, of arsenic-administration, there is often marked brownish discoloration of the skin occurring on the face and various parts of the body. This occurred in two cases that came under my own observation. In one patient, a psoriatic subject, arsenic has been given for several relapses, and had last been admin-

[1] Crocker, op. cit.

[1] Morrow: Drug-eruptions, p. 70.

[2] Jamieson, op. cit., p. 539.

istered three years before I saw the patient. There were numerous pigmented patches on the extremities, which seemed to have no tendency to disappear. In the second case, one of chronic eczema, Fowler's solution had been given for two months previous to my seeing the patient. There was marked brownish pigmentation in patches over both legs and thighs, which persisted, and was still present six months after the eczema was cured. Only recently Carrier[1] has reported a case of pigmentation of the whole body occurring suddenly during the treatment of a case of psoriasis, and further complicated by warty growths upon the palms and soles, all following the internal use of arsenic. Mathieu[2] has within a month reported a case of chronic arsenical poisoning in which the skin of the patient was bronzed, or slate-colored, in various regions of the body. On the palms and soles, as in Carrier's case, there was marked hyperkeratosis. These discolorations are attributable to the stimulated action of the prickle-cell layer, in which the pigment-cells are found, and, according to some authorities, in which the pigment is said to be formed.

These, then, are some of the chief accidents of arsenic-administration. Notwithstanding these, it is advisable to use the drug in selected cases. But, in the face of these, is it justifiable to carry on a systematic use of the drug in diseases in which the indications are not for it or are positively against it?

Arsenic is popular in the treatment of acne, notwithstanding the fact that the drug has no action on the deep layers of the skin, while acne is essentially a disease due to inflammation of the sebaceous glands or hair-follicles, which are found only in the reticular layer of the corium or in the subcutaneous connective-tissue layer.

Arsenic is often given in the erythemas, both simple and exudative, in spite of the evidence of the presence of acute inflammation in the skin, and marked exudation, which the use of arsenic tends only to increase.

Urticaria is essentially an exudative disease, attended with edema, which is the pathologic origin of the clinical evidence, namely, the wheal. The vasomotor element in the etiology might excuse the administration of arsenic, but the clinical symptoms, with the pathology, would more than counterbalance this. Aside from increasing the exudate, arsenic tends to produce edema, and in overdoses is itself responsible for an urticarial eruption.

Malaria, exposure, and the ingestion of certain medicaments are among the causes of herpes zoster. The direct occasion of the eruption is a peripheral neuritis. How often is arsenic given for this condition, although contra-indicated by its physiologic action, because the drug is a stimulant to the peripheral nerve-endings, and in tonic doses, or given for a long time, it produces this very class of eruption. Nielssen[1] found 10 cases of herpes in 557 cases of psoriasis treated with arsenic, while not one case of herpes occurred in 220 cases treated with potassium iodid.

I have referred to the indiscriminate use of arsenic in parasitic diseases of the skin, which can in no way be affected by the drug. We cannot deny that in some such diseases of the skin arsenic is of undoubted service, but these cases must be selected. Even in those diseases in which there is some specific and rational effect expected from the drug, there is in many instances conspicuous failure. It must be remembered that in many cases of cure attributed to arsenic, some other element in the external or internal treatment may be responsible.

When dermatologists themselves confess that the accidents from arsenic form a large proportion of the drug-dermatoses, and the patient is often afflicted with a permanent souvenir of large and heroic doses of the drug, while the skin-disease aimed at pursues its course not much affected, we should call a halt and question the value of the drug and its indiscriminate use.

We must arrive at the conclusion that instead of being the first, arsenic should be one of the last remedial agents to be used in the treatment of diseases of the skin, and when selected it should only be used in chronic diseases with a general distribution and in diseases associated with a neurotic element.

17 AND 19 BARONNE STREET.

[1] THE MEDICAL NEWS, February 3, 1894.
[2] Semaine Médicale, No. 14, vol. ii, p. 167.

THE RADICAL CURE OF URETHRAL STRICTURE BY THE RESTORATION OF THE MUCOUS MEMBRANE TO A HEALTHY CONDITION.

BY J. P. BRYSON, M.D.,
PROFESSOR OF GENITO-URINARY SURGERY, ST. LOUIS MEDICAL COLLEGE, WASHINGTON UNIVERSITY.

RECENT advances in our knowledge of the pathogenesis and mechanism of stricture-formation require us to recast, so to speak, our conception of the condition, and at the same time render obsolete or inadequate the definition of certain terms as well as certain classifications once appropriate and sufficient. It is this state of transition that obliges me to ask the indulgence of the Association while I briefly define the meanings which I, at least, attach to certain terms in common use; otherwise I cannot hope to make myself clear. And, first of all, is the definition of the condition we know under the name of stricture. It is plain that we must abandon the mechanical definition which made one of its

[1] Quoted in Crocker, op. cit., p. 207.

symptoms, viz., obstruction, to stand for the disease itself. It is equally plain that a precise definition can only be reached by approaching the problem from a pathologic standpoint.

In a paper reviewing this subject, read by me at the Newport meeting (1889) of this Association, the reasons were given for defining stricture of the urethra to be a chronic contracting peri-urethritis. I have seen as yet no objection raised to this as a pathologic definition. So far as the pathogenesis is concerned, it seems not too much to say that the theory of the leakage of urine or some of the constituents of this complex excretion, through a damaged or absent mucous membrane, for which we are indebted to Mr. Reginald Harrison, is now accepted as the correct interpretation of the process. Such a conception of the nature and etiology of stricture as a surgical disease, placing, as it does, the point of pathologic departure in the urethral mucous membrane, and regarding the subsequent development of the stricture-tissue at the expense both of urethral dilatability and the integrity or even the existence of the normal circum-urethral tissue as dependent altogether upon the lesion of the mucous membrane, both for its inception and its evolution, must of necessity profoundly influence those procedures that aim at its radical cure. Moreover, besides giving new prominence and value to other hitherto little studied features, it enables us to accept a more definite and better classification, and none seems to me more available for our purposes than that of Voillemier, which divides them into inflammatory and cicatricial; the first being lined still with mucous membrane, damaged though it be, the last by none at all, the mucosa having been replaced by cicatricial tissue. Under one or other of these headings any number of subvarieties may be placed, if thought necessary for descriptive purposes.

It is plain, then, that any therapeutic procedure which aims at radical cure of stricture must aim primarily in the one case at a restoration to the normal state of a damaged urethral mucous membrane, and in the other to the replacing of a destroyed portion. Now, whether it be merely coincidence or consequence of this newer conception of the causation and nature of stricture, certain it is that this is just what surgeons of to-day are doing, and in many cases with most flattering success. Warrant for this assertion is found by a reference to the successful cases, observed for a sufficient length of time, of exsection of the strictured areas, followed by suturing of the divided ends, reported by Koenig, of Göttingen, and by Heusner; of exsection of strictured areas, with transplantation of normal mucous membrane, by Wolffler, etc., and the good results attending the immediate and accurate suturing of the divided ends of urethræ severed by traumata, reported by various surgeons. Many such cases are being reported, and there is no question of the soundness of the practice. With what object is this done, unless to obtain a continuous normal, or, as Mr. Harrison would call it, a urine-tight mucous membrane? But it is of inflammatory and not of cicatricial stricture I wish here to speak.

The researches of Oberlander and Neelson have taught us that the inflammatory form of stricture may be expected to follow only upon such a mucous lesion as involves the glands of Littré. Moreover, these authorities have, with others, demonstrated the curability of these lesions by proper topical treatment, especially in the earlier stages, a point long before insisted upon by Otis. Influenced by the results obtained by these observers, and by the teaching of Harrison as to the essential cause, and having for a long time been struck with the rapid and satisfactory disappearance of those hard, fibrous walls surrounding old urinary fistulæ (tissue in every way resembling stricture-tissue), after the urine has ceased to flow over them, I had, as announced in a paper read before the Missouri State Medical Association in April, 1883, been combining topical applications with dilatation, with the view of getting a radical cure if possible in at least some suitable cases. At that time, however, I had not observed any case long enough to be sure of permanence of result, but I have continued the effort, and it is the net outcome of this clinical work that I desire to communicate to-day. Let me say again, that the entire treatment was based upon the theory that, if the mucosa could be restored to a normal state while the stricture-band was undergoing softening and inflammatory involution, we might hope to obtain a radical cure, which would be manifested by failure to recontract after leaving off the use of dilating instruments. Now, it is evident that observation for a number of years is necessary in such cases to justify one in drawing conclusions, and it is equally plain that few patients are so situated as to afford one such opportunities. Thus of fourteen patients upon whom I attempted to practise this method since December, 1887, five only remained under observation after the first year, a time entrely inadequate for the purpose. Of these five, three had linear strictures, and of these three two remained cured after two years' and one-third year's observation, respectively. The third has, though remaining under observation up to the present time, had two fresh gonorrheal infections in sixteen months.

Wishing here to deal only with the question of the influence of local applications made with the intention of restoring to its integrity the damaged mucous membrane lining inflammatory strictures, a proper regard for sources of error would compel us

to throw out of this consideration cases of linear stricture, for it is evident that in this sub-variety only a narrow zone of mucous membrane is in a pathologic state, so narrow that as a matter of fact only diaphragm-like membranes are lifted up, and it is more than probable that carefully practised, simple dilatation will cure this form of stricture without other aid from topical applications. The anatomo-pathologic condition here seems to be a rapid development of the contracting stricture-tissue in and immediately underneath the mucous membrane. Such strictures, though often difficult of penetration with instruments, on account of the eccentricity of their openings, do not often require section, for the reason that only to an inconsiderable extent are the circum-urethral tissues infiltrated with the fibrous, contracting elements. The beneficial influence of pressure upon this narrow zone of damaged urethral membrane is often in itself sufficient to restore it to the normal condition. In this way I think are to be explained many reported cases of cure by all methods of treatment, which methods are found to be entirely inadequate in cases of annular stricture. It is interesting to note in this connection that some of the older surgeons recognized the difference in the curability of these two forms of stricture.

There remain, then, two cases only for present consideration. Of one (No. 6 on my list) but little need be said, as it was apparent from the beginning that the mucous membrane was too extensively damaged to leave any hope of restoration, and the patient only submitted to the treatment in the belief, not encouraged by me, that in some way his wretched condition might be improved. This was a case of extensive inflammatory stricture of almost the entire penile urethra. When the man came under my observation, ten years ago, there were extensive deposits of stricture-tissue around that portion of the urethra extending from the posterior border of the *fossa navicularis* well back into the bulbous sinus. The largest instrument that would pass through all of the strictures was No. 8 F. This condition had followed numerous attacks of gonorrhea, and the stricture had existed for such a length of time that in many portions the fibrous, nodular condition had been reached. Continuous dilatation, interrupted by frequent attacks of urinary fever, brought the duct up to No. 14 F., when under ether internal urethrotomy enabled me to pass a No. 26 F. conical instrument. So indurated were the urethral walls that the duct seemed never to empty itself of urine, and the damaged lining was constantly bathed in this fluid. This caliber was only maintained by repeated introductions of the sound, supplemented by more or less extensive internal urethrotomies, practised during a period of several years. When I first surveyed the urethra with the endoscope I looked upon a mucous membrane which seemed to be pale, atrophied in some places, perfectly smooth, and apparently adherent to the fibrous tissue underneath; in others lined with granulations or wart-like excrescences. On the roof, where I had cut, the tissues seemed to be tucked in, so that a view of the bottom could not be obtained. I was struck with the pale appearance, the apparently bloodless condition of the urethral walls. In a few spots where the stricture-tissue was thickest the mucous membrane seemed to be smoothest and palest. The granulations and warty-covered sections were scraped with cotton on the end of a probe, and to the entire stricture-area a 2 per cent. solution of silver nitrate was applied through the tube, after cleansing. The patient still maintains that these applications have done him good by way of relieving pain on instrumentation, which he performs for himself, and in lessening the tendency to contraction. My own belief is that what of benefit has been derived is to be attributed not to the local applications, but to the long-continued use of the steel sound. The man is now forty-three, has married since he has been under my care, lives a very regular life, and takes excellent care of himself.

In the following case we have an excellent example of the adequacy of this method in a limited number of instances, even excluding linear stricture:

William S., thirty-four years old, married, was first seen February 14, 1885, when the following note was made of his examination: The meatus is narrow (19 F.); there is an annular stricture at the depth of three inches which admits a No. 12 F., and measures one-fifth inch broad; larger bulbs detect the conical shape of the anterior stricture-face. A second stricture in the bulbo membranous part admits only a filiform bougie. The patient has never received any injury to the parts, but attributes his trouble to a gonorrhea which he had sixteen years previously. The examination produced very slight bleeding.

On March 2, 1885, I cut the anterior and divulsed the posterior stricture to 30 F. On March 3, 1885, I visited the patient on account of a slight urethral chill, which came on five hours after the operation. On March 8, 1885, I passed a 30 F. and caused slight bleeding. On March 9, 1885, the patient announced his intention of going South to accept employment. On April 12, 1887, he returned, with both strictures recontracted to their original size; he had neglected the introduction of the sound; had dissipated a good deal; had retention on the previous evening, which had been relieved by Dr. Mayger, who gave a hot bath and opium. I aspirated above the pubis and withdrew fifteen ounces of slightly cloudy undecomposed urine, and tied in a filiform bougie for continuous dilatation.

For six weeks, viz., from April 12 to May 24, 1887, inflammatory dilatation, at first continuous and after-

ward intermittent, brought the urethral caliber up to 31 F. The patient then again ceased to attend. On December 12, 1887, he returned, when an examination showed that the anterior annular stricture had recontracted to 18 F., while the posterior stricture was not discoverable with the bulb admitted by the anterior. Endoscopic examination showed a zone of urethral wall at the site of the anterior stricture, estimated at a little more than a quarter of an inch in breadth, paler than that immediately behind or in front of it; lusterless, with here and there small darker spots, looking like submucous hemorrhages. The mucous membrane fell away from the end of the tube in irregular, transverse, shallow folds. Some minute bloodclots came away on the cotton introduced to wipe off the surface. On the whole the membrane looked paler and thinner than normal. Reintroduction of the instrument to the site of the posterior stricture revealed only a narrow zone, looking redder and more dusky than normal, and slightly velvety. The folds here appeared to be longitudinal. The pallor, so striking within the anterior stricture, was distinctly wanting here. From this time on, intermittent dilatation was practised at intervals of four and six days. Following the withdrawal of the steel sound, applications of 1 and 2 per cent. silver nitrate solutions were made to the stricture-areas.

Within four weeks all visible pathologic appearances at the site of the posterior stricture had disappeared, and the mucous membrane lining the anterior stricture had become redder, smoother, and apparently more supple. At the end of nine weeks the patient discontinued attendance. At this time, though the urethral mucous membrane looked normal, a No. 31 bulb still encountered slight obstruction at the site of the anterior stricture, which was not felt by a No. 30 bulb.

I did not again see this patient until June 13, 1889. Examination on that date showed the urine to be normal, with a slight excess of mucus in that voided in the first over that in the second glass, but containing no pus and no blood. The meatus admitted a No. 33 F. with a little force. A No. 30 F. passed through the hole in the triangular ligament without meeting any obstruction whatever. Endoscopic examination discovered nothing abnormal. No instrument had been passed in the meantime, and the patient observed nothing unnatural. On February 12, 1891, the patient came again to my office, at my request, for examination. Neither the bulb, the blunt steel sound, nor the endoscopic tube disclosed anything abnormal. The patient declared that no instrument had been passed by himself or any person since June 13, 1889.

A brief *résumé* of this case shows that in two years, after thorough cutting and divulsion, an annular and a linear stricture, being neglected and without other treatment, recontracted to their original size, and, on exposure, brought on acute retention, requiring hot baths and opium for its relief. First continuous and then intermittent inflammatory dilatation brought both strictures up to No. 31 F. in six weeks. Neglect of all treatment for six and a half months resulted now in a recontraction of the annular stricture from No. 31 F. to No. 18 F. (13 numbers), with apparently no recontraction of the linear stricture. Intermittent dilatation, combined with topical treatment directed to the restoration of the lining mucous membrane, practised for nine weeks, resulted in a radical cure of the stricture, demonstrated by failure to recontract in the absence of all treatment, and without the introduction of instruments to maintain the caliber, this being proved by observation extending over a space of nearly four years.

The case is an exceptional one for many obvious reasons, chief among which may be mentioned the twice-demonstrated ability for recontraction to take place in the absence of all treatment that would prevent it. The existence of a linear stricture posterior to an annular one is, I think, also exceptional, and there is a possibility that the indications of its existence were deceptive. Certain it is that the posterior stricture seemed to get well on simple dilatation, and promptly. This, however, I believe, is not exceptional in cases of linear stricture, for the reasons already set forth. Of the existence of an annular stricture, at least one-fifth of an inch in breadth, the evidence does not permit me to doubt.

That we will obtain such good results in many cases of inflammatory stricture of the annular variety I do not in the least believe. The whole question of radical cure undoubtedly depends upon our ability to restore to its normal condition the mucous membrane lining such a stricture. That a certain proportion of such strictures can be cured by combining topical treatment with that intended to do away with the purely mechanical manifestations of stricture-disease, I think this case clearly demonstrates. This method of treatment will not, I fear, become very common until patients exhibit more persistence and surgeons less of the prevailing itch for cutting. Less hopeful even than cutting, divulsion, or stretching, would, I think, be electrolysis, which, applied after the manner of the modern schools to a case like this, would be more likely to destroy than to rehabilitate the precious remainder of lining mucous membrane. To this conclusion I think we are irresistibly pushed, knowing as we do that the electrolytic action is chiefly spent upon the surface to which the electrode is directly applied, and we certainly have no evidence whatever of the power of surface-electrolysis to restore damaged mucous membranes in other parts of the body. Why should it be exhibited any more on the surface of the urethral mucous membrane than upon that of any other?

NOTE.—This paper was read before and discussed by the American Association of Genito-Urinary

Surgeons during the Congress of American Physicians and Surgeons, held at Washington, D. C., in 1891. In April, 1893, the patient, William S., again presented himself at my office, and was examined by Dr. H. McC. Johnson and myself. A No. 29 F. blunt steel sound passed without obstruction into the bladder. The urethrometer of Otis, drawn forward after being distended to No. 34 F. in the bulb, had to be gradually reduced to No. 31 F., until it approached to three and one-fifth inches of the meatus, when it could be again distended to No. 33 F. without causing distress. At this distention and position it could be rotated with the application of a little force, but had to be turned down to No. 31 F. before passing forward. In the *fossa navicularis* it could again be distended to No. 33 F. and rotated.

If the evidence of the urethrometer is to be relied upon, it would appear that at the point where the stricture originally was there is now an abnormal dilatation. It is well known that the growth and condensation of the stricture-tissue cause pressure-atrophy of the normal circum-urethral elements, and the inference seems justified that complete atrophy of the stricture-band was not, in this case, followed by their redevelopment. It was a surprise to me to find the urethra so distensible at this point, and yet this is what should have been expected, and it is an additional proof of the permanent cure of the disease. The patient promised to return for an endoscopic examination, but left the city without doing so.

209 N. GARRISON AVENUE.

ORIGINAL ADDRESS.

SYDENHAM.[1]

BY SIR HENRY ACLAND,
REGIUS PROFESSOR OF MEDICINE IN THE UNIVERSITY OF OXFORD.

IT would ill become me to detain you by a full account of the reasons for erecting a statue to Sydenham in Oxford; I might rather be called on to explain why it has not been done before. Suffice it to say that thirty-five years ago the name of Sydenham was written on yonder corbel, between John Hunter and Harvey, so that no other might there be placed. It is a pleasure to remind you that on one of the corbels, orginally suggested by the Prince Consort, some forty years ago, the statue of John Hunter, given by Her Gracious Majesty the Queen, was placed, and that on the next corbel you will unveil to-day the memorial of another great benefactor of mankind, one of an illustrious company of five selected to represent here the science and art of medicine.

On a recent public occasion your Lordship [the Marquis of Salisbury] said of medicine, with your usual force, that "it is the most sober, the most absolute, the most positive of all the sciences." Some not conversant with the facts may dispute this. An art which is based upon physics, chemistry, experimental and observed physiology, the ascertained causation of disease, its prevention as well as relief, not only for the human family, but for domestic animals in every climate, cannot be surpassed in complexity by any art or science whatever. It might seem, therefore, strange that medicine should be represented here by only five persons of all time. But the five are a sixth of the number whose statues can be erected in the court to typify all physical science, ancient and modern. And truly, the five represent a vast range of knowledge and a long history of achievement.

Sydenham, the representative practitioner among the Moderns, stands in the center. On his right is John Hunter, who, for the interpretation of disease, its causes, its prevention, its cure, searched through every form of life in the Book of Nature, existing or extinct, vegetable or animal, from their birth to their death, in their form and development and functions, and through observation, experiment, and treatment, and left a key whereby to unlock the ever-growing wonder of life through death and of death through life. On the other side of Sydenham stands Harvey, to whom it was given to solve the problem that had been unsolved from the remote period since search into the nature of man began. He made it possible to reveal some of the deepest secrets of the higher forms of life through the knowledge of fact and the destruction of unproved speculations concerning the nature of a vital principle.

These three, Hunter, Sydenham, and Harvey built on the foundation of two of the most marvellous men in the marvellous century which produced Aristotle and Hippocrates: Aristotle, the student and first interpreter of the material nature of all animal life, and the analytic and synthetic exponent of the psychic nature of man; Hippocrates, if not actually the founder of medicine as he is sometimes called, yet the first known expositor of the philosophy, the science, and practice of the great art of healing, in some ways unsurpassed even to the present day. These two, in their respective ranges of human observation and deduction, maintained a supremacy over philosophic thought during nearly two thousand years, a supremacy misunderstood and misapplied by their successors.

I may be pardoned, here in Oxford, for saying a few words on the relation of Sydenham to his eminent contemporary, John Locke. It is still a question which influenced most the mind of the other. The epoch of Locke and Sydenham, like that of Aristotle and Hippocrates, was one of the critical periods in the history of thought. Aristotle was naturalist and psychologist. Hippocrates threw his whole force, under the influence of the great minds of antiquity, into the observation and analysis of the diseases of man; their causes, consequences, treatment, and prevention. It is enough to shame the average tone of medical practitioners in the early part of this century that the scientific interest and wide political significance of comparative national health should have been made known in Athens four hundred years before Christ, by the Divine teacher of Cos.

Locke and Sydenham were not actual founders of modern systematic psychology and medicine, as were Aristotle and Hippocrates. They were, to a certain

[1] An address delivered on the occasion of the unveiling of a statue of Sydenham in the Museum of the University of Oxford, August 16, 1894.

extent, destructive critics of mistaken dogmas. They brought the exponents and students of mental and medical science back to observation and its conclusions, and removed them from speculations without data, and from misinterpreted authority. The merit of both lay in this, they rejected abstract assumptions and definitions not based on observed fact, and thus Locke made perhaps the greatest change in mental philosophy since the days of Plato, and Sydenham the greatest in medicine since the days of Hippocrates.

Locke and Sydenham were both students and practitioners in medicine at Oxford about the same time; each entertained for the other the highest respect and admiration. They studied man from different points of view, and each with a deep sense that they should so direct their experiments and observations that "Science . . . may grow day by day more clear and more efficient," "In this way the human race," said Sydenham, "may reap the advantages thereof generally and with safety, even after they themselves have been laid in their graves."

It would be impossible on this occasion to describe in full the condition in which Sydenham left practical medicine at his death, in 1689, or to discuss the merits of his own procedure in detail. Like those great men whose contemporary he was, Boyle, Newton, Locke, he was observer and interpreter of Nature, observer of fact under every condition of being and of change, interpreter so far as the knowledge and means of his age made interpretation possible. Confident in the rightness of his method, he dedicates in a careful paper his observations on the history and cure of acute disease to Robert Boyle, and receives himself a Latin poem on the occasion from Locke. He thanks Boyle, for "in the fulness of your humanity you have gone so far as to accompany me in visiting the sick." This method of observation and experiment, searching, scientific, according to the progressive means, methods, and gifts of the age, is now accepted as the basis, the only basis of therapeutics.

It remains to be added that Sydenham looked on his profession, dealing with the sufferings of mankind, as a solemn trust from God. This temper appears and reappears. "Since it is the will of God," he writes, "the Supreme Arbiter and Regulator of all things, that the human frame be, by nature, adapted to the reception of impressions from without, it follows that it must be liable to a variety of maladies." In the preface to his great work on acute diseases, he says: "Whoever takes up medicine should seriously consider the following points: First, that he must one day render to the Supreme Judge an account of the lives of those sick men who have been intrusted to his care. Secondly, that such skill and science as, by the blessing of Almighty God, he has attained, are to be specially directed toward the honor of his Maker and the welfare of his fellow-creatures, since it is a base thing for the great gifts of heaven to become the servants of avarice or ambition. Thirdly, he must remember that it is no mean and ignoble animal that he deals with. We may ascertain the worth of the human race, since for its sake God's only-begotten Son became man, and thereby ennobled the nature that He took upon Him. Lastly, he must remember that he himself hath no exemption from the common lot, but that he is bound by the same laws of mortality, and liable to the same ailments and afflictions with his fellows. For these and the like reasons let him strive to render aid to the distressed with greater care, with the kindlier spirit, and with the stronger fellow-feeling. In all cases it behooves each and all of those physicians who have the desire not only to *seem* but to *be* prudent and honest, to acknowledge and entreat the Divine goodness that from this they may look for wisdom and good fortune; and they ought not to be satisfied with simply giving health to the sick, but they should strive to add greater certainty to the art that they administer; and they should so direct their experiments that the science of medicine may grow day by day more clear and more efficient. In this way the human race may reap the advantages thereof generally and with safety, even after they themselves had been laid in their graves."

After these pregnant words I may be allowed briefly to notice the broad lessons we may learn even in our day of unprecedented research and knowledge—from Aristotle, Hunter, and Harvey, from Hippocrates and Sydenham, concerning the aims, methods, duties, and character of modern medicine. The modern attitude and scope of combined medical science and practice have one thing in common with the times of Sydenham and of Hippocrates, viz., the personal life and character of the true physician. These are unaltered and unalterable while the human race remains. We have all seen men in this respect like Hippocrates and Sydenham in our own day. I will name three physicians of England, of Scotland, and of Ireland —Latham, Alison, and Stokes—they were physicians typical as educated, scientific, gifted, practical observers—lovers of men and lovers of God, they all possessed eminently the qualities which are found in various degrees of perfection or imperfection in every age and every country, in every city and in every village where a skilful and beloved physician is found.

Hear the words of Latham addressing the students of St. Bartholomew's Hospital, within our memory: "Diseases are not abstractions; they are modes of acting, different from the natural and healthy modes—modes of disorganizing, modes of suffering, and modes of dying; and there must be a living, moving, sentient body for all this. This body must be your study, and your continual care—your active, willing, earnest care. Nothing must make you shrink from it. In its weakness and infirmities, in the dishonors of its corruption, you must still value it—still stay by it—to mark its hunger and thirst, its sleeping and waking, its heat and its cold; to learn its complaints to register its groans. And is it possible to feel an interest in all this? Ay, indeed it is; a greater, far greater, interest than ever painter or sculptor took in the form and beauties of its health. Whence comes this interview? At first, perhaps, it seldom comes naturally; a mere sense of duty must engender it; and for a while a mere sense of duty must keep it alive. Presently, the quick, curious, restless spirit of science enlivens it; then it becomes an excitement, and then a pleasure, and then the deliberate choice of mind. When the interest of attending the sick has reached this point, there arises from it, or has already arisen, a ready discernment of diseases, and a

skill in the use of remedies. And the skill may exalt the interest, and the interest may improve the skill, until in process of time experience forms the consummate practitioner. But does the interest of attending the sick necessarily stop here? The question may seem strange. If it has led to the readiest discernment and the highest skill, and formed the consummate practitioner, why need it go further? But what if humanity shall warm it? Then this interest, this excitement, this intellectual pleasure, is exalted into a principle, and invested with a moral motive and passes into the heart. What if it be carried still further? What if religion should animate it? Why, then happy indeed is that man whose mind, whose moral nature, and whose spiritual being are all harmoniously engaged in the daily business of his life; with whom the same act has become his own happiness, a dispensation of mercy to his fellow-creatures, and a worship of God."

The conception of preventing disease existed in the mind of Hippocrates in the widest sense, leading him into social, ethnologic, political, philosophic inquiries as to the material and moral cause of mental and bodily weakness in individuals and in nations, comparing the intellectual and physical conditions of Greeks and Persians, and tracing the various causes of their difference. The prevention of disease has become, in the memory of many now living, a part of the most ordinary routine of medical inquiry and practice, and is studied throughout the whole world. The care of the public health involves now complex inquiries into vital statistics, questions of districts and areas, social problems, engineering, meteorology, and geology, and the real but not the fanciful requirements for family life, whether in country or town. It is remarkable how much of this was foreseen by both Hippocrates and Sydenham.

Processes and modes of minute investigations into conditions normal and abnormal throughout all living beings, grasped by only a few half a century ago, have become parts of the earliest studies of every one entering the profession of medicine. Now they lay the foundations for the observation of facts in every state of health and of non-health in all living beings and for all clinical and therapeutic conclusions. But the temper and yearning of Aristotle, Hunter, Harvey, Hippocrates, and Sydenham must animate all, and amid the various phases of physiologic and pathologic progress may they be ever found in your Lordship's ancient University.

Oxford has bred many such examples besides Sydenham, Willis, Locke, Boyle. May she give to the world many, many more! May she continue to develop all the means she possesses for this blessed work, leaving to the resources of larger populations, in the Metropolis, in Edinburgh, in Glasgow, in Manchester and Birmingham, and of the great foreign cities where the care of thorough clinical instruction for which Oxford has not and cannot at present have the means of providing.

We ought, however, to be able to show here to our scientific students, without distracting them from their scientific work, the nature and extent of modern medicine. They may study the general principles of construction and administration of hospitals, the care of the sick poor in their own homes, by means of the staff of our large provident dispensary and of our trained district-nurses. They may and do now examine our village and rural populations, our extensive drainage-works, with our sewage-farm, and the works for the water-supply of our city. The development of each of these has opened a field for instruction not even dreamt of a few years since. Considerable knowledge of all these can be easily obtained by intelligent youths during the period of their general and scientific education in Oxford. What an enlargement of their sympathies and breadth of view before they enter on the vast field of clinical observation in the great voluntary or State hospitals now open to students.

As to the advance of actual and applied knowledge through scientific physiology and pathology since Sydenham's day, and as to the prospects of the near future of medicine through all races and conditions of men, by means of the great congresses of public health gathered from all parts of the world, this is not the time, even if I were able, for me to speak. It cannot be doubted that the recent development of knowledge of the causes, nature, and prevention of disease through the study of living animals and by bacterial research may produce ere long as great a change in the prevention of many diseases as Jenner in the last century produced for one. Though this may be the most astonishing result of the medicine of the nineteenth century, in relation to all the races of mankind, it is not the only result which in the twentieth century may be made known to man.

I beg your Lordship to accept this statue for Oxford, and so to keep ever alive before the future students of medicine examples of Hippocrates, Harvey, and Hunter, of Aristotle and Sydenham, and the many true and noble natures to be found in the annals of every civilized nation of the world.

CLINICAL LECTURE.

CONGENITAL DISLOCATION OF THE HIP.[1]

BY ROSWELL PARK, A.M., M.D.,
PROFESSOR OF SURGERY, UNIVERSITY OF BUFFALO.

HERE are two little girls, aged respectively eight and eleven, who both have apparently some spinal curvature. Even through the clothing the abnormal gait and the deformity of the spine are noticeable. In the case of the older child the deformity is symmetrical, whereas the younger one shows a one-sided deviation.

Let us examine the older child more carefully. The gait is a peculiar sidling one, as if the hips yielded somewhat at each step. The hips project backward, giving the buttocks a strange appearance. There is an abrupt lumbo-dorsal angle in the spine, and the abdomen is correspondingly protuberant. With all this deformity, which has been noticed since early infancy, the child complains of no pain and of but little fatigue in walking.

The case presents the typical picture of bilateral congenital dislocation of the hips. Let me show you that the spinal curvature is only apparent, in order to compensate for the false position of the femora on the pel-

[1] Delivered at Buffalo General Hospital.

vis. By placing the girl flat on her back the deformity disappears. I will take some measurements while an assistant steadies the pelvis. Nélaton's line is drawn from the tuberosity of the ischium, around the hip to the anterior superior spine of the ilium. Normally, the tip of the trochanter is just beneath this line, but here the trochanter is an inch and a half above it, as traced with the dermograph. There is about the same displacement on the other side. By flexing and rotating the thighs, and pushing up and down, the trochanter moves more freely than it should, indicating that the capsules are relaxed.

The younger child, a sister of the other, presents essentially the same condition, except that it is located on one side. The compensatory deformity of the spine here is not so much an anterior curvature as it is rotation. The gait is, therefore, like that of a person with one leg shorter than the other. On drawing Nélaton's line I need not mark the position of the trochanter, as the child is so thin. It is about an inch and three-quarters above the line. On the other side its position is normal. The capsule is even more relaxed than in her sister's case.

It is rather a remarkable coincidence that these two cases should occur in sisters. There is no family history of such trouble, and there are other children of the same parents who are not similarly affected.

The question of operation is a matter to be very carefully considered. I should rather operate on the child that has the trouble on one side, for there would be only half the shock, and she is younger and more amenable to treatment. But I am not in favor of operating, even in the latter case. A cork sole under the foot of the affected side would correct the gait somewhat, although it would not relieve the condition of the hip. The older sister, of course, could not be helped in any such way, and apparatus designed to hold the hips in better position is irksome and cumbersome, and I am not much inclined to advise any interference.

This next child I have brought before you to illustrate the result of operation for congenital dislocation of the hip. The child was placed absolutely in my hands, to be dealt with as seemed best to me. About three months ago I did the new operation devised by Prof. Hoffa, of Würzburg, and reported by him at the Congress of German Surgeons in 1890. It consists in cutting down upon the head of the bone, loosening it from all connections and adhesions, including the muscular insertions about the neck, and then in cutting still further, and making a new socket for the head of the femur at the point where it ought to be. The innominate bone is reamed out if necessary. The parts are then sewed about the head of the femur, and an apparatus is used to hold the femur in its proper position until a new socket shall have formed. The operation is simple in theory, but difficult in performance, and its success has not yet been fully demonstrated. Prof. Hoffa told me personally that he was getting very encouraging results. I represented to the parents of this child that such reports had been made to me, and told them that I was willing to carry out the operation if they were willing to abide with the result.

The child rallied well from the operation, and the wound healed without delay. Now, the head of the bone is in its proper position, but it can still be pushed up into its old position, so that the child is wearing a hip-joint splint, by which she is enabled to walk, the weight of the body being borne, not so much by the outer rod of the splint as by a distinct attachment, a perineal support. The apparatus, which is a modification of my own device, has been on for only two days, and I shall advise that the child be not allowed to walk for many months. The splint consists of a long brace, with a joint opposite the hip and one opposite the knee, which is at present locked, but which can be loosened later, so as to permit the leg to be bent; a broad support behind the thigh connected with the metallic rod; and a perineal crutch, which can be removed at any time. When the apparatus is in place the weight of the body is transmitted through the crutch and metallic cross-piece to a brace underneath the foot. Like any ordinary hip-joint apparatus, this is held in place by a pelvic girdle, and has an arrangement for lengthening the outer bar as the child grows. Below, it is held in place by adhesive strips applied to the leg. At the upper end of the long rod I have had a pad made opposite the great trochanter, and intended to hold it down to its proper position. This is not a feature of the ordinary hip-joint splint.

I have, of course, labored under the disadvantage of never having seen the operation done by its originator, having learned of it only through the reports of cases and my conversation with Dr. Hoffa. There is good motion in the hip, and the child can herself kick up her leg. In fact, there is a little too free motion, and this retentive apparatus has been put on to keep the limb quiet for a number of months. It will be at least a year and a half or two years before the value of the interference can be judged. I have certainly not made the child any worse, and the hip, though not available for active use at present, is in its normal location. [Eight months after the operation the child's condition was satisfactory.]

I have shown you these three cases for their clinical interest and their instructiveness in the matter of diagnosis. Aside from the question of treatment, the diagnosis being easy, the condition is one of peculiar interest to the surgeon on account of its etiology. The very fact that many different hypotheses have been offered by different writers at different times indicates that the explanation is shrouded in difficulty. I think, however, that it is correct to maintain that all cases are not due to the same cause or causes, and that at various times various anatomical conditions operate to bring about the clinical result so well illustrated here to-day. Let me briefly run over the principal hypotheses that have been advanced in explanation of the condition, and which I have tabulated in this schema upon the blackboard. This is essentially the classification of Krönlein, who has studied the matter most carefully:

1. Causes traumatic by
   - *a*. External violence, as by a fall during pregnancy or by violent uterine contraction.
   - *b*. Injury during birth, particularly in breech-presentations.
2. Causes spontaneous, due to
   - *a*. Laxity and deficiency of ligaments.
   - *b*. Fetal hydrarthrosis, or perhaps even fungous degeneration of the joint, with effusion or possibly caries.

3. Causes involving peculiar positions of the lower limbs *in utero:*

a. By strong flexion of the thighs, with weakness of the cotyloid ligaments.

b. By pressure of the abdominal walls, the amniotic fluid being deficient, so as to cause undue adduction of the thighs.

4. Muscular contraction, due to some central nervous lesion in the fetus.

5. Paralysis of the peri-trochanteric muscles.

6. Arrested development.

This last is the most common cause, and is based on what is known as Ammen's theory. It has of late years received confirmation from the researches of many others. It rests upon a solid scientific basis, and, so far as museum-specimens go, is certainly the most common cause of the condition. It has been the cause of all the cases the specimens from which I have had the opportunity of examining. The anatomic defect may consist in premature ossification of the Y cartilage at the bottom of the acetabulum, or, more often, in a retarded growth of this cartilage and failure on the part of the three segments forming the acetabulum to properly develop. Another manifestation of this same arrest of development may be seen in malformation of the rim of the acetabulum, which may be almost or even entirely lacking. As a matter of fact, any developmental failure will permit and favor displacement of the femur. This theory is also favored by the fact that congenital dislocation of the hip is often associated with other congenital malformations, sometimes of serious degree. I have not been able to discover such an association in any of the three cases shown you to-day, but the clinical history of many other cases illustrates this general tendency. It should be added that, while the malformation at the hip is usually confined to the acetabulum, there may also be cases in which the head and neck of the femur are imperfectly developed, and essentially the same result is brought about.

By all means the most common form of dislocation is upward and backward on the dorsum of the ilium. It is this form that gives the instantly recognized deformity and the characteristic gait observed in these cases. Congenital dislocation forward upon the pubes, and even downward into the obturator foramen, has been described, but is exceedingly rare. The *ligamentum teres* is usually lacking. When present it is commonly enlarged and thickened, and put on the stretch, as it necessarily must be in supporting the weight of the body. Ordinarily the capsule is entire, but by attrition and wear and tear, it may become atrophied, and at least the upper part may almost completely disappear. Sometimes it also is thickened, and it may be constricted at the middle into an hour-glass form. Occasionally there develops a new rim on the upper margin of the false acetabulum.

Standing as these patients must stand, the pelvis is in large measure suspended by whatever is left of the capsular ligament and the *ligamentum teres*. The trunk above is tilted, as the center of gravity of the pelvis and of the lower part of the trunk is thrown forward. There is a compensatory throwing back of the upper part of the body, in order to maintain the erect posture. This accounts for the peculiar curve of the spine so characteristic, as well as the rotation of the spine that marks cases of unilateral dislocation. It often happens that this enforced lordosis is mistaken for the primary condition, instead of being recognized as purely secondary and compensatory. Another tendency is toward abnormal development of the pubes, the anterior portions of the ilia being made to approach each other gradually, while the ischial tuberosities separate. Thus the entire pelvis becomes misshapen. Fortunately, the ilium seldom becomes too thin to justify the excavation of a new socket when operation is otherwise indicated.

Should you ever be in doubt as to diagnosis in a case of suspected congenital dislocation of the hip, it is a simple measure to place the patient on the back and manipulate the thigh, when it will be found that the trochanter can be put through an excursion upward and downward, and often forward and backward, to a degree never permitted in the normal condition.

So far as prognosis is concerned, these cases seldom become worse and seldom better when left alone. The gait, however, becomes more characteristic, and while walking appears very difficult, it really is not painful, scarcely even tedious to the patient, except that it is necessarily slow. There is a street-sweeper in this city, a middle-aged man, dwarfed in stature, who has this condition extremely well marked. He works as hard as any of his fellows, but he is so clumsy in his motions that I often wonder that he has not been run over and maimed or killed long before this.

As the gait becomes more conspicuous with advanced life the lordosis increases to a certain degree, beyond which it does not advance. This condition, not being an active disease of the spine, is painless, and in fact the suffering connected with congenital dislocation of the hip is almost purely mental.

Naturally the very important question arises as to what can be done for relief. It is fair to suppose that if the condition is recognized when the infant first begins to walk—or if possible earlier still—and the child be kept in bed, with slight traction on the limbs, there would develop in course of time substitutes for the natural acetabula which would fulfil their purpose more or less satisfactorily. Unfortunately, children thus deformed are seldom seen by the surgeon at an age when this simple treatment would be of avail. Unfortunately, too, it is hard to secure the intelligent coöperation of parents and to inculcate lessons of sufficient patience. Were you to ask me how long to keep such an infant in bed, I could not give you any definite rule; but I should say at least two, perhaps three years. You well know how few parents will consent to enforced confinement of an otherwise healthy child for such a length of time, partly from mistaken motives of kindness and partly from the disinclination to assume the care which would necessarily devolve upon themselves.

If the dislocation be unilateral and be taken in hand early it will be quite possible to carry out the same principle of long-continued extension by means of a hip-joint brace. As between some such simple measure as this and the radical method resorted to in the first case shown you, the choice is seldom presented. The radical operation has been performed thus far by but few surgeons. The general opinion of those who have tried it is rather favorable. The patients, however, must be carefully

selected. The puny, squalid child is not a suitable case for any serious operation; nor is the one whose parents cannot give it the proper care, or for which accommodation in some suitable institution cannot be secured. Again, these cases should be taken at the earliest possible moment, and until I have more reason to advise it than I have at present, I should scarcely recommend operation in children over three or four years of age.

In the case of the two sisters just before you I have told the mother essentially this: that I could give her practically no hope in the case of the older child with the double lesion, but that in the case of the younger child, I thought the condition would justify operation; that this would probably do no harm, even if no good were accomplished, and that the prospect was fair for perceptible improvement, providing she could afford the necessary time and attention. The poorer class of people, to whom she belongs, must necessarily consult expense in these matters. She lives at a distance, and I am not willing to take the responsibility of the operation unless she can leave the child here as long as may seem best. She must also see her way clear to provide the necessary apparatus at the conclusion of my operative treatment, and this will entail an expense of $40 or $50. It is a great pity that financial considerations have weight in deciding what to do in any surgical case, but as you have more than once seen in this clinic, they sometimes form a very important factor, even when professional services are given gratuitously.

I think I may conclude what I have to say to you this morning by advising you always to represent to parents or responsible friends of a patient, as I have done in this case, that such an operation as is under consideration here is an experiment—a scientific and perfectly justifiable experiment, but nevertheless an experiment. It is such an experiment as I should not hesitate to have tried on any member of my own family under proper circumstances, but I would be quite unwilling to undertake it upon this little patient or any other unless the guardians of the child were satisfied to regard it in that light.

CLINICAL MEMORANDA.

MYELOMA: REPORT OF A CASE.[1]

BY JAMES B. HERRICK, M.D.,
ATTENDING PHYSICIAN TO THE COOK COUNTY HOSPITAL,
AND
LUDVIG HEKTOEN, M.D.,
PATHOLOGIST TO THE COOK COUNTY HOSPITAL, CHICAGO.

OCCASIONALLY the bone-marrow becomes the seat of primarily multiple lymphomatous tumors, which are usually associated with grave anemic conditions. These tumors are described quite fully by Klebs[2] in connection with lymphoma under the special designation of myeloma (*Myelom*). They are, in other words, medullary lymphomas, lymphomatous tumors occurring apparently as primarily multiple growths in the medulla of bones.

The term myeloma can hardly be said to have acquired this special significance in American medical literature, and the various dictionaries define it as a tumor of bone-marrow, or as synonymous with encephaloid. Dock employs the term myeloma freely in his classic article on "Chloroma and its Relation to Leukemia."[1] In describing an illustrative case we have concluded to use the term myeloma in the restricted sense just alluded to, because the word is not associated so closely with any other growth or condition as to result in confusion.

According to Klebs,[2] v. Rustizky[3] was the first to describe as a peculiar form of neoplasm the primarily multiple tumors of bone-marrow. That the primary multiplicity of these medullary tumors is characteristic of myeloma has been established by all subsequent observations,[4] none of which disclosed a tumor of sufficient size and development to merit the distinction of being regarded as the primary focus; it must also be borne in mind that the tumors occur essentially in the bone-marrow, while growths in other organs are only occasional.

Microscopically the tumors consist of unusually wide blood-spaces without any definite walls, located in diffuse areas of round, lymphoid cells, with large nuclei rich in chromatin, dispersed in a wide-meshed, finely fibrillated, delicate network of connective tissue.[5]

Myelomas cause a bulging of the bone in which they occur; often the growth breaks through the compact layer and infiltrates the periosteum and the para-periosteal and peri-periosteal tissues. In this respect they differ from leukemic lymphomas in bone-marrow; neither is the histologic structure identical.

Klebs has seen the rapid development of myeloma follow what he calls typical, pernicious flagellate anemias, and speaks of their anemic basis as quite well demonstrated.

On account of the many shortcomings in the observations of the case about to be recorded, we do not feel at liberty to analyze the various cases in the literature with a view to establishing somewhat more definitely the nature of these growths and their relation to lymphoma, pernicious anemia, and leukemia, but there are a few instances of those described that bear such a marked resemblance to ours, and at the same time indicate a distinct relation to blood-diseases, that brief references to them may perhaps be allowed.

Nothnagel[6] describes *in extenso*, under the title *lymphadenia ossium*, an interesting case, the main points of which may be detailed as follows:

A twenty-four-year-old man suffered for a year and a half from attacks of severe pain in the sternum, the abdomen, and the long bones. There were periods of fever of exquisitely intermittent character, often of a distinct tertian type; there was progressive emaciation; no malarial parasites were found in the blood, and after inoculations from the blood, culture-media remained sterile; there was swelling of the sternum and of the extremities. The blood-examination showed the hemo-

[1] Presented, with specimens, to the Chicago Pathological Society, March 12, 1894.

[2] Allgemeine pathologische Morphologie, 1889, p. 671 et seq.

[1] Amer. Journ. Med. Sci., 1893.

[2] Loc. cit. [3] Deutsche Zeitschrift für Chirurgie, Bd. iii, p. 162.

[4] Zahn, Deutsche Zeitschrift für Chirurgie, 1885, Bd. xxii; Waldstein, Virchow's Archiv, Bd. xci, p. 10; Grawitz, ibid., Bd. lxxvi, p. 353; Nothnagel, Festschrift R. Virchow, 1891, Bd. ii; Wien. med. Blätter, 1892, xv, pp. 149 and 165, also in Medical Press and Circular, London, lii, p. 671, and liii, p. 5; Coates, Glasgow Med. Journal, xxxvi, p. 420; Kohler, Prager medicin. Wochenschrift, 1889, No. 4.

[5] Klebs: Loc. cit. [6] Loc. cit.

globin-estimation to be 30 per cent, and 1,824,000 red corpuscles to the c.mm., with poikilocytosis, the presence of nucleated red cells, some leukocytosis, the polynuclear leukocytes, with neutrophilic granulations, being especially increased; there were also many lymphocytes, a few eosinophiles, and a few large mononuclear leukocytes with homogeneous plasma. The hemoglobin fell to 24 per cent. before death. The post-mortem examination showed the pelvis, the spine, the scapulæ, the clavicles, the sternum, and the ribs, as well as all the long bones, and some of the bones in the hands and the feet, to contain microscopically characteristic lymphomatous masses, *i. e.*, myelomas.

Coates[1] describes, under the title "multiple sarcoma of bone," an instance of myeloma in a forty-three-year-old man, in whom a sternal swelling had existed for five years. The whole of the sternum was replaced by tissue composed of round, polygonal cells; the first and second ribs on the left side were involved, and all the other ribs down to the fifth were loosened; there were a number of spindle-shaped swellings elsewhere on the ribs, and the whole vertebral column, except the upper two and the lower two vertebræ, was affected to the extent that the bodies of the vertebræ were replaced by tumor-tissue; there were masses in the humerus and in the left femur also.

Grawitz,[2] in an article entitled "Maligne Osteomyelitis und sarcomatöse Erkrankungen des Knochensystems als Befunde bei Fällen von perniciöser Anämie," details a case of anemia following typhoid fever, in which round-celled sarcomatous tumors developed in the cranium, the vertebræ, the femora, the humeri, the bones of the legs, the right clavicle, the ribs, and the sternum; there were also tumors in the liver, the right adrenal, and a disseminated involvement of the peritoneum.

Kahler[3] describes, under the title "Zur Symptomatologie des multiplen Myeloms," the case of a physician, forty-six years old, who was under observation for eight years. Severe pain in the upper region of the chest marked the onset of the disease. Attacks of pain, at times osteoscopic, at times in the course of various superficial nerves, at times visceral, were frequent during the course of the malady. Flattened, elevated masses appeared on the surface of the bones, particularly the ribs; at the end of six years there was marked kyphosis in the upper dorsal region. The inguinal glands very slowly enlarged during the last year, and finally a spontaneous fracture of the upper dorsal vertebra occurred. The autopsy, which was unavoidably incomplete, revealed the fracture referred to, a large splenic tumor, great fragility of many of the ribs, with partial disappearance of their cortical substance; and upon microscopic examination extensive osteoporosis, dependent upon the multiple development of a tissue with the characteristics of round-cell sarcoma.

Kahler calls attention to the bone-pains and bone-swellings, the limitation of the affection to the bones of the trunk, the absence of marked flexibility of the bones, and the final appearance of the tumors and of the enlargement of the lymphatic glands, as features enabling the differential diagnosis to be made between myeloma and osteomalacia. He regards albumosuria, which was present in this case, as a frequent symptom of multiple myeloma. Huppert[1] has described the urine of this case under the title "Ein Fall von Albumosurie."

[1] Loc. cit. [2] Loc. cit. [3] Loc. cit.

The following is the clinical history of our case:

Mrs. A. C., a Bohemian, forty years of age, was admitted to Ward 8 of the Cook County Hospital, March 22, 1892. The family history was negative. Menstruation, which still continued, had begun at the age of sixteen and had been regular and painless, though scanty of late. Four healthy children had been born after normal pregnancies and short, easy labors. There had been no miscarriage. No history of syphilitic taint, hereditary or acquired, could be elicited. The woman had enjoyed good health up to thirteen months prior to entering the hospital, with the exception of an attack of rheumatism several years ago.

In December, 1890, and in January, 1891, the woman had suffered from pain in the lumbar region and over the lower vertebræ and the sacrum. In February, 1891, she noticeed a small nodule over the lower end of the sternum. This was not at all painful, and enlarged so slowly as not to excite her alarm. But soon other swellings appeared on the face and chest, and her strength began to fail. Some of the nodules she thought had disappeared after being visible for a time. In January, 1892, she began to cough.

On admission in March, 1892, the following points were noted: The patient was much emaciated and very pale. There was edema of both upper eyelids, with slight pitting on pressure over the tibiæ. Several nodules were seen over the anterior chest-wall, the largest about the size of a hickory-nut, fairly firm, painless, slightly tender on pressure, and located at the junction of the ribs with the costal cartilages and of the latter with the sternum. There was some diminution in resonance, with loss of intensity of the respiratory sounds, over the bases of the lungs, and large and small moist râles could be heard over all parts of the chest both on inspiration and expiration. The examination of the heart was negative, as was that of the abdomen, save that deep palpation in the lumbar region caused some pain. The mental condition was good; the pupils were equal, regular, reacting to light and in accommodation. No paralysis or disturbance of sensation in any part of the body could be found. The urine was examined on March 25th, and the report showed twenty-eight ounces for twenty-four hours, the color yellow, the specific gravity 1020; albumin was present, 33 per cent. by volume; there was an abundance of leukocytes, and granular hyaline casts. The temperature at the hour of admission was 100° F.; the pulse 132, the respirations 42.

A few days after admission a nodule appeared on the forehead just above the base of the nose. This remained prominent for a few days, and then gradually disappeared. At this time the patient was taking mercury and increasing doses of potassium iodid.

During the fifteen weeks' stay in the hospital there was never an elevation of temperature above 101°. For days at a time the thermometer registered between 97° and 99°. Twice the record shows 101° and five times 100°. The pulse varied from 90 to 140, occasionally being intermittent. Respiration was always a little rapid and at times labored.

Omitting details of several records which relate especially to progressive emaciation and weakness of the patient and to the description of new nodules as they appeared, we quote from the record of June 29th, at which time the following notes were made:

The emaciation was extreme and the patient very weak. The thigh could be encircled with a single hand.

[1] Prager medicin. Wochenschrift, 1889, No. 4.

The mental condition was fairly good, and patient spoke hopefully of her eventual recovery. The cervical, inguinal, and axillary glands were moderately and painlessly enlarged. The heart-sounds showed no murmurs; the second sound was accentuated; and there was no evidence of cardiac enlargement. Over either chest below the angle of the scapula there was dulness, with loss of vocal fremitus, and distant bronchial breathing. Near the upper limit of the dulness, bronchial breathing was marked and the vesicular element was detectable. Coarse and fine moist râles were present as at the first examination. There was abundant muco-purulent expectoration. Anteriorly there was resonance, in places hyper-resonance. The dulness on the right side extended from the sixth rib in the mammillary line to a point one inch below the costal arch. The smooth edge of the liver was palpable at this point. Palpation of the ribs showed no bony defects, but some of the ribs, *e. g.*, the third rib on the right side, yielded so readily under pressure as to make one extremely cautious in examining, lest a fracture should be produced. The edema of the left upper eyelid, which had always been much more marked than that of the right, still persisted. The pupils were apparently normal.

The nodular enlargements were located as follows: Over the center of the forehead, where there had previously been a node, could be felt beneath the freely movable skin a roughening of the bone. Above this was a small nodule. Just above and behind the right external canthus was an elastic swelling, over which enlarged veins showed distinctly. Over the left malar prominence was a nodule, walnut-sized, not tender, and seemingly quite firmly attached to the bone. The right clavicle at its middle was enlarged, and here there could be detected a new point of motion and crepitus. There had been no traumatic cause for this fracture. At the junction of the ribs with the cartilages, and of these with the sternum, were nodular enlargements, firm, not sensitive to pressure, varying from a size just perceptible up to the size of a large walnut. Over the inferior angle of the left scapula was a nodule. The seventh cervical vertebra was unusually prominent, and in the mid-dorsal region the spinous process showed what seemed to be a nodule. Over the inner condyle of either humerus were nodes interfering somewhat with complete flexion of the arm. There was another on the posterior border of the lower half of the left humerus. No distinct crackling sound could be made out.

The blood-count showed the relation between the colorless and the red corpuscles about normal, 1 to 350. There were 2,800,000 red corpuscles to the cubic millimeter, the percentage of hemoglobin, estimated by Fleischl's hemometer, being 45. Unfortunately, no stained specimens were made.

During the night of July 1st the patient was delirious. She died, apparently from exhaustion, at 5 P.M., July 3d. During the course of her illness she urinated quite frequently, and there was a slight tendency to diarrhea. The latter may have been due, in a measure at least, to drugs.

The clinical diagnosis was: Multiple sarcoma, involving the bones of the upper portion of the body; hydrothorax; probable intra-thoracic tumors; chronic bronchitis; chronic nephritis.

It is but justice to Dr. Christian Fenger to add that he made an ante-mortem diagnosis of myeloma.

The anatomic diagnosis was: Multiple tumors in the sternum, the ribs, the spine, the right clavicle, the left humerus, the right humerus, the left malar bone, the skull; invasion of the adjacent soft tissues and of the dura; tumors in the ovaries; fibrous perisplenitis; chronic nephritis, hydrothorax, and chronic bronchitis.

Inspection.—There was marked emaciation and whiteness. On the left cheek, on the forehead near the margin of the hair, on the inner surface of the left elbow, on the central part of the right clavicle, upon the sternum, and along the costo-chondral junctions, as well as elsewhere upon the ribs, were found subcutaneous nodules and

Photograph showing location of tumors.

masses having the following characteristics in common: They were elastic, flattened or oval, not connected with the skin, but apparently attached to the underlying bones; the skin was movable and free from any signs of inflammation; the clavicle and some of the ribs were freely flexible at the site of the masses; the size was variable, from that of a hazel-nut to that of a hen's egg, and those over the breastbone, the clavicle, and the cheeks were the largest. The skull felt rough about, and especially above, the areas in the forehead.

Internal Examination.—On making the usual long anterior incision and reflecting the soft parts, many of the masses over the sternum were cut through. They were reddish-gray on the section-surface. The sternum and the cartilages were removed by means of sawing some distance beyond the costo-chondral junctions. The peritoneum was empty and smooth. The pleuræ contained much reddish fluid. The heart was normal in size; there were no endocardial changes; the myocardium was quite firm, but there were a number of yellow areas present which gave the endocardial lining of the ventricles a speckled appearance. Both lungs floated and crepitated; the lower lobes were rather heavy and contained considerable dark-red blood; on pressure mucopus oozed from the cut bronchi. The spleen was adherent to the diaphragm; it measured 13 by 8 by 2.5 cm.; the cut surface seemed normal. The kidneys measured 11 by 6 by 2.5 cm.; the capsules were somewhat adherent, and there were many cortical cysts; the cortex was 5 mm. in thickness, and its markings were rather indistinct, there being many streaks and areas of yellow. Both ovaries contained a few small tumor-areas of reddish color and firm consistence; these areas were irregular in shape and size. The liver measured 28 by 21 by 7 cm.; and it was firm. The central area of the lobules was dark-red in color, the periphery being yellow. The gall-bladder, the stomach, and the intestines did not present any changes. The brain also was normal and the dura will be described in connection with the bones of the skull.

The bones. Both the external and internal surfaces of the sternum were irregular and covered with tumor-masses, which extended into the adjacent tissues so deeply that in some places the tumor-tissue was cut through in removing the bone; the mediastinum was

not deeply involved, however, and there were no nodules that occurred independently of the sternum. The entire sternum was thickened, most so in the upper part, where it measured from 4 to 5 cm. in thickness. The sternum was also soft and flexible, and in many places the entire bone-tissue was replaced by soft, reddish-yellow masses, while in other places it seemed distended by similar masses growing from the medullary part, so that the compact tissue was shell-like and thin, and over these points there was parchment-crackling or craquement on rather slight pressure. On dividing the breastbone vertically with a saw, the entire interior was found filled with a soft, reddish-gray or yellow vascular tissue, that distended the bone into a shell, and this was again penetrated freely and apparently *ad libitum* by the new tissue, which had accumulated underneath the periosteum, as well as spread out into the peri-periosteal structures; the junction between the first and second pieces was bony, and there were also spiculæ of bone here and there in the neoplastic masses. The bony shell was thickest near the lower end, but the entire sternum was much expanded by the new growth in its interior.

The ribs contained a large number of similar tumors, which projected underneath the pleura as well as outward; the pleura had not been penetrated at any point, but externally the periosteum had been ruptured in many places, and the new tissue had spread out into the adjacent structures. The nodules upon the ribs varied much in size, were usually oblong or oval, peculiarly elastic on palpation, and of reddish-gray color. There were two points of selection, apparently, as regards location, namely, along the costo-chondral junction and at the spinal attachment of the ribs; in front this produced an appearance not unlike the so-called rosary of rickets. On the left side there was a rather diffuse, flat swelling, involving the third, fourth, and fifth ribs, near the sternum, and the soft tissues between them. In many places the ribs bent readily without crackling; in other places the bone had been distended into fusiform shells that broke easily. There were no nodules involving the costal cartilages that did not at the same time remain connected with the ribs or the sternum.

Along the costo-vertebral articulations was a diffuse growth of new tissue which in some places involved the bodies of the vertebræ; removal of two of the dorsal vertebræ showed that the bodies had been largely replaced by soft tissues which, while allowing the bodies to retain their normal shape, had grown out into the surrounding soft parts. The central third of the right clavicle was expanded into a large, fusiform mass, through the middle of which the bone was completely absorbed, so that the clavicle consequently bent readily; this mass measured 15 cm. in diameter.

Large nodular masses were also observed upon the inner surface of the left humerus near the elbow-joint and upon the outer aspect of the head of the right humerus, but these were not incised for cosmetic reasons, as the permission to examine the body was not without restrictions. For the same reasons the large mass over the left malar bone was not incised. The character of these masses, as far as it was possible to make it out, has been detailed under the general description of the external appearance. No masses were found upon the bones of the pelvis or of the lower extremities, but no internal examination of these bones was made.

The skull presented the following peculiar appearance: Underneath the scalp in the frontal and fronto-parietal regions were irregular fungoid masses creeping out of the bone; the masses were of all sizes up to that of a silver quarter, and they were all somewhat flattened. There were also rough areas in the bone that suggested absorption of the soft tissue that probably once occupied them. In the front part the calvarium was in many places porous, and it was sawed through very easily, the resistance to the saw not being nearly as marked as ordinarily. Along the usual saw-incision the calvarium was much increased in thickness—more so in some places than in others; this was due to a growth of soft, red tissue in the diploë, which forced the two tables apart and crept through the bony shell freely both externally and internally, so that, roughly speaking, the entire anterior half of the inner surface of the calvaria was occupied by an almost continuous layer of this new tissue; corresponding to this extent the external surface of the dura was rough and presented fungoid masses, usually flattened, that fit into the honeycombed depressions in the bone.

The longitudinal sinus was empty and smooth. The internal surface of the dura over the right hemisphere presented one mass 1 cm. in diameter, located at the junction with the falx, 4 cm. above the crista galli; there were no changes in the subjacent pia. The changes in the skull and the dura extended as far downward as the root of the orbits in front, and to a corresponding part laterally; posteriorly the limits were marked by a line drawn across the top of the head from one external auditory meatus to the other. The frontal sinuses and the orbits were not examined. There were no changes at the base of the skull except in the hypophysis, which unfortunately was lost.

Microscopic Examination.—Sections were made from most of the medullary tumors and from the growths in the ovaries. The structure is the same in all, and consists of round, lymphoid cells, with quite large nuclei arranged in a finely fibrillated, at times almost homogeneous, matrix; in places they are very closely packed together, in other places more loosely. There are many blood-spaces of irregular size and shape found in the tumors, usually without any definite walls, the blood-mass being in direct relation with the surrounding wall of lymphomatous cells.

NOTE.—Ignorant at the time of the relation that might exist between these tumors and changes in the blood, we failed to make as complete observations as could have been desired; nevertheless we have deemed the case of sufficient value to merit this report.

A CASE OF FATAL NAUSEA AND VOMITING OF PREGNANCY.

BY W. D. JONES, M.D.,
OF RISING CITY, NEB.

MRS. S., twenty-two years old, a blond, of generally good health, except for a naturally weak stomach, but of a neurotic temperament, married two years, called upon me about March 1, 1894, complaining of slight nausea and occasional vomiting. After seeing her a second time, and feeling positive that her symptoms were due to pregnancy, I told her of my opinion. The existence of this condition was resolutely denied.

The patient kept about for two months, when her stomach absolutely refused to retain other than the blandest form of nourishment, and that in the minutest quantity. This being insufficient to support the vital forces, rectal alimentation was tried, with discouraging results. Up to this time digital examination had been refused, but was finally permitted. The uterus was found low down in the pelvis and retroverted. These conditions were corrected without any appreciable effect. The cervix and the cervical portion of the vagina were painted with Churchill's compound tincture of iodin, and boro-glycerid tampons were used without encouraging results. All of the usual remedies having failed to give relief, and the condition becoming more alarming—

the woman being nervous and sleepless, with a pulse of 120, slight jaundice, retro-sternal pain almost constant and accompanied with vomiting of bloody mucus and coffee-ground material—evacuation of the uterus was proposed as a *dernier ressort*. Accordingly the cervix was dilated and the lower uterine segment packed with 10 per cent. iodoform-gauze, in the hope of stimulating uterine contractions. Having failed to produce the desired effect, the packing was removed at the end of thirty-six hours and replaced by two medium-sized bougies. At the end of twelve hours these were supplemented by a third, which accidentally ruptured the membranes. There being slight and gradually rising temperature and complete uterine inertia, the bougies were removed at the end of forty-eight hours, and immediate instrumental evacuation of the uterus was determined upon. With the skilful assistance of Dr. East, a fragmental delivery was rapidly accomplished under chloroform, with the loss of only a slight amount of blood. The uterus was irrigated with hydrogen dioxid. Churchill's tincture of iodin was applied to the endometrium and the cavity packed with iodoform-gauze. There was no appreciable shock following the operation, and a few hours afterward the patient expressed herself as feeling better.

The temperature subsided to normal three hours after the operation, but the pulse gradually increased to 130, and the patient died twelve hours after the operation.

An autopsy was not secured until forty-eight hours after death. The body had been embalmed and was in a perfect state of preservation. Emaciation was decided, with marked jaundice of the surface. The epigastric fat was about half an inch thick and very yellow. The liver and gall-bladder were normal; the kidneys were abnormally soft and flabby. Only a tactile examination of the kidneys was made, as an exploration of the stomach alone was granted. At the pyloric end of the greater curvature a distinct erosion of the mucous membrane was observed, laying bare the minute submucous bloodvessels.

This case, I think, corresponds with three reported by Dr. Edward P. Davis, of Philadelphia, in THE MEDICAL NEWS for June 2, 1894, p. 597.

A CASE OF HYDROPHOBIA.

BY C. M. BOWCOCK, M.D.,
OF SPRINGFIELD, ILL.

ON June 5, 1894, I was telephoned to come immediately to see a child that had been bitten by a dog. I found a little girl, three years old, whose face had been quite badly lacerated by the dog's teeth. Within ten minutes from the time the accident occurred I had washed and thoroughly cauterized the wound with silver nitrate, and directed the mother to keep the parts thoroughly cleaned by means of a 1 : 3000 solution of mercuric chlorid. On the following day I found the little patient getting along nicely. Eighteen days after the accident I found the injury nicely healed and quite healthy-looking, the scars not being in the least inflamed. Three days later the child was brought to me complaining of itching and soreness in the scar, with headache and slight fever. The cicatrix was cyanotic and tumid, the glands under the jaw were a little enlarged and slightly sore, and the child was quite nervous. On the following day I was called, to find the girl suffering with well-developed hydrophobia. The mere sight of water would cause slight spasms, and even speaking of water would make her extremely nervous. There seemed to be an entire absence of appetite, the child refusing all food, liquid or solid. She continued to be very restless until death. The pulse ranged from about 120 to 140, and was small and hard. The temperature varied between 101° and 101.5°. The pupils were very much dilated at times, especially in the presence of strangers. All movements increased the general nervousness. There was slight redness of the fauces. The bowels were very much constipated. Intelligence was not impaired in the least. The voice was indistinct in tone, speaking seeming to require quite an effort, and increasing her nervousness.

On removing the patient from one room to another the sight of water in a bucket at least six feet away induced quite a violent convulsive paroxysm. During such an attack breathing seemed quite difficult. On applying the hands to the patient's legs or arms general trembling of the muscles could be detected. The little patient rapidly grew weaker, and in the last two hours of life lay in a comatose state, passing away quietly.

Considering the short duration of the child's sickness she was very much emaciated indeed. The case ran a typical though very rapid course, death taking place about eighteen hours after the first appearance of the symptoms.

The dog was a large, male, white bull-dog, weighing about eighty pounds. As far as I can learn he was a strange animal, and must have wandered from some distance. When first observed he attracted attention by his peculiar behavior and rapidity of movement. He was seen to attack and kill a small dog, and to bite a cow and rush on. He bit at several other dogs and objects on one of our main streets, and his strange actions attracted general attention. After biting the little girl, by whose screams a neighbor was attracted, the animal attacked the latter also, but was killed before he could do further damage.

THERAPEUTIC NOTE.

STRONTIUM LACTATE IN NEPHRITIS.

BY LEWIS J. BATTLE, M.D.
OF WASHINGTON, D.C.

THE MEDICAL NEWS for April 21st, 1894, p. 425, contains an interesting lecture by Prof. J. M. Da Costa, on the treatment of nephritis. Three instructive cases are reported in which strontium lactate was used, and the opinion is expressed that this agent is an admirable diuretic, especially in cases of acute nephritis. On June 5, 1894, I was called to a man, fifty-six years old, an employé in one of the departments here, who had enjoyed good health until last April, when he contracted a severe "cold," which was followed by rheumatism in the lower extremities. His appetite was variable, and at times he suffered with intense nausea. He was markedly anemic. He complained of persistent dull pains in the lumbar regions. His temperature varied from normal to 101°. There was pronounced dropsy of the

face, abdomen and legs. The urine was scanty and high-colored, and rather of a smoky hue. It had a specific gravity of 1010 and contained 9 per cent. by bulk of albumin. There were present also, blood, hyaline and epithelial casts. The patient was directed to go to bed, and a diet of milk was prescribed. The bowels were kept open with concentrated solutions of magnesium sulphate, and infusion of digitalis was given as a diuretic. When I found that this treatment did not greatly benefit the patient, I tried strontium lactate in doses of thirty grains four times per day, as recommended by Prof. Da Costa. The man's appetite soon improved; his anemia diminished; his dropsical condition ameliorated, and the urine, greatly increased in quantity, presented no blood, less albumin and fewer casts. The drug is deserving of careful and extended trial in cases of nephritis, acute, subacute and chronic.

NEW DEVICE.

A NOTE UPON THE VALUE OF DIRECT MASSAGE OF THE CORNEA AS AN AGENT IN THE TREATMENT OF CORNEAL OPACITIES.

Presentation of a New Instrument.[1]

BY H. MCI. MORTON, M.S., M.D.,
OPHTHALMOLOGIST TO ST. BARNABAS' HOSPITAL, MINNEAPOLIS, MINN.

THE large number of remedies that have been proposed to clear the cornea of scars or superficial infiltrations are but discouraging proofs that we have not as yet any one method of treatment that is eminently satisfactory. It may be observed, from their widely different local action, that the pathology of these formations has not been carefully kept in view by the advocates of many of the remedies proposed.

There is no great consecutive number of cases in which vision is impaired by an opacity that will yield to the same treatment, so far as a drug is concerned. The different conditions present demand different means of therapeusis: in the one case, a slightly irritating remedy; in the other, a decided irritant. It is not that I would advocate any new drug, but a method that facilitates the action of medicines in many cases, and even more, will in itself, I believe, do much toward the diffusion or entire dispersion of the obstruction to vision. The cure of peripheral opacities is usually demanded for cosmetic reasons alone, but in the case of a scar in the pupillary area, it becomes more than the disfigurement it causes, as it may greatly interfere with vision.

After any corneal ulceration a certain amount of the cellular infiltration present clears up, and in cases in which there has been little more than a loss of epithelium, an almost imperceptible scar remains. This is particularly true in the case of children. In such cases, very little of the true corneal tissue has been involved, the epithelium suffering most. There is a class of cases, however, in which the ulcer has left more or less decided loss of the cornea, which is partially or completely filled up with cicatricial tissue. In many cases treatment gives but unsatisfactory results. In a few of such patients I have, by a process of massage which I shall describe, been enabled to aid materially in rendering the cicatrix less dense. Of this, I am sure, and the diminished density will, of course, permit of much less diffusion of light and an improvement of vision that has been noticeable in some of the cases. The manner in which I have practised direct massage of the cornea during the past year and a half has been as follows:

The cornea is rendered insensitive by a 10 per cent. solution of cocain, which, at the same time, by its action upon the corneal epithelium, facilitates the entrance of the drug used. The head of the patient resting upon the knee of the surgeon, the eyelids are separated with the thumb and forefinger of the left hand, and the massage-spoon is held in the right. The cornea is gently rubbed alternately in a circular and radiating manner from one to three minutes, and this is repeated as often as is indicated in the individual case. It is to be remembered that the uvea, or region just external to the corneal limbus, nourishes the cornea, the lens, and the vitreous, and is the great lymph-producer for the eye, particularly the anterior segment. For this reason, I desire to lay stress upon the fact that these movements should not be confined to the area immediately adjacent to the opacity, but should be applied, not only all over the cornea, but also in the ciliary zone upon the sclera.

After the massage has been practised, I knead the globe with the thumbs of my two hands, carefully but thoroughly. By following out this plan the lymph-channels are thoroughly opened, and the activity of the lymph-currents increased. This in itself is not only a means of dissipating the opacity, but allows the medicament used an excellent chance for action. In massage through the lids, as spoken of by various authors, it is impossible to obtain the effect in a satisfactory manner, and for two principal reasons: in the first place, the manner of applying massage through the lids to the cornea, or any portion of the anterior ocular segment, is, if I may use the expression, a "blind" one. It is impossible for the operator to tell at just what point he is applying the massage. Again, the method is indirect, and cannot be as efficacious as when the massage-spoon

is employed. This instrument I devised about one year and a half ago, and I have used it continuously in suitable cases since. It is so arranged that the cornea is thrown into very small furrows, and it also will be noticed that any ointment used is held nicely between the forks, and can thus be "worked into" the cornea during the massage. I should like to add that this form of treatment has been of value in the deep forms of scleritis when used with the ointment of yellow mercurous oxid, and I have used it in the infiltration constituting interstitial keratitis, but am not yet ready to speak with any authority as to the result.

In pannus this procedure has been partially efficient, and in one case vision was recovered to a remarkable

[1] Read before the Minnesota State Medical Society, June 20, 1894.

degree. It must be borne in mind that this treatment is, as I have said, an adjuvant, and I do not pretend that it has any marvellous power. That it is rational in its action must be obvious; that it has yielded satisfactory aid in the treatment of corneal opacities in my practice I am sure.

In opacities following non-inflammatory conditions of the cornea it is of little avail, for here we have to deal with very different conditions. I am confident that it is far superior to massage through the lids; and the protection rendered the lens by the aqueous humor, and the necessary skill of the operator, make the danger of injury to the lens very slight indeed.

The instrument is made by Mr. E. B. Meyrowitz, of New York. A citation of cases, I believe, would avail little. I give my experience in the use of what I call direct corneal massage, and hope that it be extensively tried and found to be as valuable an adjunct to the therapeutics of corneal neoplasms as I have found it.

DAYTON BUILDING.

MEDICAL PROGRESS.

Successful Gastrorrhaphy for Perforated Gastric Ulcer.—GILFORD (*Lancet*, No. 3692, p. 1369) has reported the case of a woman, twenty-nine years old, who presented symptoms of gastric ulcer at the age of twenty-one, when she vomited blood on two occasions. In the interval, though subject to dyspepsia of indefinite nature, there had not, until recently, been marked pain or return of vomiting. This last appeared to bear no relation to the ingestion of food, and the vomited matters were free from blood. Pressure over the greater part of the abdomen occasioned no pain, but at one spot that could be covered with a silver quarter-dollar the pressure of the finger caused acute pain. Appropriate treatment was prescribed, and for a time the woman improved, but in the course of four months pain and vomiting returned. Some two months later, after a breakfast of cold mutton and bread and butter, and while engaged in household duties, the woman was seized with agonizing pain a little above and to the left of the umbilicus. The pain extended to the middle and lower part of the sternum, and especially to the shoulder of each side. Respiration was mainly thoracic, and was restricted by the pain induced by deep breathing. The abdominal muscles were rigid and sensitive to pressure. There was nausea, but at first no retching or vomiting. The temperature was 96.8°, the pulse 68, regular and of normal size and tension. A diagnosis of perforation of a gastric ulcer was made and a solution of opium injected subcutaneously. Celiotomy was decided upon, and an incision three and a half inches long was made in the middle line. On opening the peritoneal cavity a small perforation with friable margins was found on the anterior wall of the stomach, near the center. The interior of the stomach was explored for other ulcers, but none was found, and the margins of the perforation were then excised. Ten silkworm-gut sutures were next introduced through the whole thickness of the stomach, including the mucous membrane. After the wound had been closed a tube was passed into the stomach and water poured into it through a funnel, to test the efficiency of the sutures. The approximation having been found competent, the abdominal cavity was well irrigated with boiled water and the wound closed, a bulbous, glass drainage-tube being first passed through, so that its bulbous extremity rested on the closed ulcer. For seven days the woman was fed with peptonized-milk enemata, varied occasionally with beef-tea and raw meat, six ounces being given from every four to six hours. On the ninth day the wound suppurated, the temperature rose slightly, and the woman appeared haggard and depressed. On the tenth day two tablespoonfuls of peptonized milk and one of beef-jelly were given every hour by the stomach. Three days later the diet was enlarged to include oysters and farinacea. On the fourteenth day the woman passed a stool that was said to have been capped with pus. On the seventeenth day the temperature rose to 103° and the pulse to 132, and the expression became anxious, sunken, and haggard. An exploratory examination was under consideration, when during the night the woman was suddenly aroused from sleep by an acute pain a little above and to the left of the umbilicus, and almost immediately afterward called out for the bed-pan. A pale, loose, highly offensive stool was passed, evidently composed principally of pus, and three other motions of a similar character were passed subsequently during the day. The temperature rapidly fell and did not again rise. The woman now speedily improved, and three weeks after the operation was sitting up in a chair. In the following year she gained in weight, and remained free from dyspeptic symptoms.

Trifid Uterus.—DEPAGE (*Archives de Tocologie et de Gynècologie*, vol. xxi, No. 7, p. 550) has reported the case of a girl, twenty-two years old, in whom menstruation first appeared at the age of eighteen years, and who from this time had suffered with vague pains in the back and abdomen, becoming progressively more localized. The pain occurred in paroxysms setting in on the fifth day of menstruation, and lasting at times for ten days. Menstruation was otherwise normal. There was, however, a slight leukorrhea. Tumefaction of the abdomen had never been observed. On palpation a tumor about as large as a fetal head was detected in the left iliac fossa, extending a little to the right of the median line. The mass was slightly movable, appeared to fluctuate, and presented an irregular though not lobulated surface, and dipped into the pelvis. To the right and below, directly behind the pubis, a second tumor, harder than the first, and not fluctuating, could be felt; it was about as large as a fist and also dipped into the pelvis. On vaginal examination the cervix uteri could not be felt, but a tumor projected into the vagina. With the aid of a speculum the cervix was found displaced forward and to the right. It was almost effaced, and manifested itself as a small, round opening. By means of a sound the uterus was found to be displaced to the right; the bladder was likewise displaced to the right and was situated directly in front of the uterus. On conjoined vaginal examination and abdominal palpation, it was found that the two tumors were movable upon one another. It was at first thought that the condition was one of ovarian cyst, but it was finally concluded that there existed multiple subperitoneal fibromata of the uterus. Celiotomy was decided upon, and after opening the abdomen a fluctuating cystic tumor was found

in the left broad ligament, intimately connected with a solid tumor behind the pubis and projecting into the vagina. The cyst was adherent to both omentum and intestines. On introducing the hand into the right iliac fossa the ovary was found enlarged and cystic, and it was extirpated. It was found impossible to remove the cyst and the tumor through the abdominal wound, and after a ligature was applied to the pedicle of the tumor the abdomen was closed, a provisional dressing applied, and the woman placed in a position for the removal of the new formations through the vagina. An incision was made around the cervix, the uterus dissected from the bladder, the cul-de-sacs opened, clamps applied, and the tumor-mass removed. The wounds were closed and suitable dressings were applied. The patient made an uneventful recovery. The cystic tumor was found to involve the left ovary. The remainder of the mass consisted of a uterus with three divisions. One of these communicated with the right tube and one with the left tube. The third was a closed sac connected with the common neck of the other two. The walls of all consisted of typical muscular tissue and were lined by characteristic membrane and contained utricular glands. The explanation of the occurrence of the trifid uterus is thought to reside in the formation of a diverticulum from one portion of a bifid uterus, resulting from a failure of union of the ducts of Müller.

The Preservation of Organized Urinary Sediments, Particularly Tube casts.—BOHLAND (*Centralblatt für innere Medicin*, 1894, No. 20, p. 449) details a method for the preservation of organized urinary sediments. The morphotic elements are collected by sedimentation or centrifugation, the excess of fluid removed, the sediment washed with a physiologic salt-solution and then treated with Müller's fluid. The last is renewed three or four times during a period of two weeks. After removal of the Müller's fluid the sediment is hardened by means of absolute alcohol, which is renewed until it takes up no more color. The sediment can be thus kept, or if the supernatant alcohol is permitted to evaporate the sediment may be preserved in the dry state. Sediments thus prepared may be used for purposes of demonstration or instruction, or they may be additionally stained.

With the same end in view, SMITH (*Southern Medical Review*, vol. i, No. 1, p. 4) separates the sediment by permitting the urine to stand in a conical glass, or by the use of the centrifuge, the supernatant fluid being cautiously removed. To this sediment is added sufficient of a solution of 10 or 15 grains of chloral to the ounce of water to restore the fluid to its original volume. After the lapse of twelve hours the supernatant chloral is poured off and a similar amount of fresh solution added. This procedure is repeated twice or thrice, the final amount of fluid, however, not being more than half or third of the original. If the chloral-solution be renewed every three or four months, such a preparation may remain in good condition for a number of years. Microscopic preparations made with comparatively fresh solutions of chloral, mounted on perfectly clean slides, overlaid with clean covers, and well sealed, will remain in good condition for months.

Pulsating Empyema.—At a recent meeting of the Société Médicale des Hôpitaux, BÉCLÈRE (*L'Union Médicale*, 1894, No. 60, p. 718) presented a man, thirty-one years old, who, nearly three years before, had been seized with cough, and three months later with pain in the left side of the chest, together with other evidences of pneumothorax and effusion into the left pleural cavity, the apex-beat being situated at the level of the right nipple. Under suitable treatment the condition of the patient improved, and he was able to resume his occupation. A month before coming under observation the dyspnea suddenly increased without appreciable cause. The apex-beat was found in the sixth interspace on the right side, several inches from the median line. The left pleural cavity was occupied by an effusion, and the left side of the chest, corresponding to the sixth, seventh and eighth interspaces between the axillary lines, was moved in pulsation synchronously with the action of the heart. For the relief of the dyspnea thoracentesis was practised, and nearly six pints of pus evacuated, in which examination failed to disclose the presence of microörganisms. There was dulness on percussion over the entire left half of the chest; neither metallic tinkling nor a succussion-sound could be elicited, although on auscultation below the clavicle, at the same time as percussion was practised over any part of the lower third of the chest, a metallic sound could be heard. In the discusion RENDU expressed doubts as to the case being one of true pulsating empyema, as in this condition the effusion is usually circumscribed. He rather thought that the pulsation resulted from the transmission of the movements of the heart displaced and compressed by the large effusion.

Two Cases of Xeroderma Pigmentosum in One Family.—DE AMICIS (*Berliner klinische Wochenschrift*, 1894, No. 20, p. 467) has reported the occurrence of xeroderma pigmentosum in two brothers, six and four years old, respectively, without hereditary predisposition. When the elder was eight months and when the younger was one year old there appeared upon the face, the neck, the dorsum of the hands, and lower third of the forearms numerous spots, some reddish and telangiectatic, some lenticular and pigmented, others larger, blackish-yellow and deep-black in color. At the same time there occurred cicatricial and atrophic areas and infiltration of the margin of the lids of the eyes and ectropium. The skin was dry, rough, scaly, and parchment-like. When the elder child was five years old there appeared upon the face, and particularly upon the cheeks, an eruption of fungus-like elevations, varying in size from a pea to an almond; the same conditions appeared in the younger child at the age of three years. In the elder the nose became sharp and the alæ atrophic. Both presented notable enlargement of the epiphyses of the bones of the hand; one of the children presented numerous acne-pustules upon the face. Despite the most careful treatment the condition of the children failed to improve. Some of the new-formations disappeared spontaneously, leaving cicatrices; others were removed with a sharp spoon. Examination of the blood and of bits of removed tissue failed to disclose the presence of microörganisms. The tissue presented a granular, vascular appearance, with epithelial cells arranged as in lobular or tubular epitheliomata, and numerous cells undergoing degeneration.

THE MEDICAL NEWS.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

COMMUNICATIONS are invited from all parts of the world. Original articles contributed exclusively to THE MEDICAL NEWS will upon publication be liberally paid for, or 250 reprints will be furnished instead of payment. When necessary to elucidate the text, illustrations will be provided without cost to the author.

Address the Editor: GEO. M. GOULD, M.D.,
1004 WALNUT STREET,
PHILADELPHIA.

Subscription Price, including Postage in North America.

PER ANNUM, IN ADVANCE . . . . . $4.00.

SINGLE COPIES . . . . . 10 CENTS.

Subscriptions may begin at any date. The safest mode of remittance is by bank check or postal money order, drawn to the order of the undersigned. When neither is accessible, remittances may be made, at the risk of the publishers, by forwarding in *registered* letters.

Address, LEA BROTHERS & CO.,
Nos. 706 & 708 SANSOM STREET,
PHILADELPHIA.

SATURDAY, SEPTEMBER 1, 1894.

THE CRANIAL CHARACTERISTICS OF CONVICTS.

IN the search for a criminal type anthropologists have described certain characteristics of the human skull which they believe are more commonly found in convicts than in the population at large, and to which they ascribe a definite importance, considering them signs of inferiority or degeneration, and holding that the individuals presenting such marks must belong to an atavistic or degenerate variety of the race.

Crimes or acts of an anti-social nature are more common in the primitive races than in the more enlightened—at least it is claimed that they are more natural to the inferior races, and, therefore, criminals must be more akin to savages, and must, like them, more often present the signs of inferiority. Comparisons have thus been made between the skulls of convicts and those of savage races, of the insane and of the so-called *honest* individuals of enlightened nations, and the anomalies noted with an exactness that might well be followed in other fields of science. Thus it has been observed that the average capacity of the skulls of convicts (about 1455 c.c.) is below that of the skull of normal man (1500 c.c.). The term normal is here used to denote the population outside of prisons, who are apparently sound in body and in morals. LOMBROSO, the founder of the school of criminal anthropology, makes a further differentiation by claiming that the thief more often presents a very small skull-capacity than a normal one, while the murderer more often presents a very large capacity. A cranial capacity of from 1100 to 1200 c.c. is common among thieves, while a capacity of from 1600 to 1700 c.c. is more frequent among murderers. BORDIER has found that prehistoric man had a large skull-capacity.

No material difference has been found in the measurements of the horizontal circumference of the skull in different classes of society. A small circumference is as frequent among the normal as among convicts. As regards the cranial index, the race-factor plays so important a rôle that no generalizations are here possible. While LOMBROSO considers a brachycephalic skull common in Italian murderers, BENEDIKT finds dolichocephaly to prevail among German murderers, mesaticephaly in the French, and brachycephaly in the Russian.

As LOMBROSO shows, not only must the nationality be taken into account in a consideration of the cranial features, but even the smaller provinces show differences in the population. Thus, Piedmont, a province of Italy, contains a greater number of brachycephalics, while the inhabitants of Sardinia and Sicily and other provinces of Italy are mostly dolichocephalic.

Asymmetry of the skull has been considered an important anomaly. BENEDIKT finds that 50 per cent. of thieves examined present cranial asymmetry; BAER finds this in 12 per cent. of all criminals; while LOMBROSO's figures are 23 per cent. for criminals, 7 per cent. for the insane, and 4 per cent. for the normal individual.

This condition, however, is quite frequent among normal individuals. An investigation of the Königsburg collection of skulls, of presumably honest persons, showed that 25 per cent. were irregular in outline. LE BON, in making measurements of 300 skulls, could not find *one* perfectly symmetric. Even a greater asymmetry among convicts can be explained by the fact that many of these come from the poorer classes. In the first place, rickets and other diseases which result in premature union of the sutures or undue yielding of the bones are more common among badly nourished children than among the population generally. Secondly, accidents during pregnancy and labor are more likely to occur among this class than among those who are

well attended, and who are not required to engage in arduous labor during the period of gestation. Finally, the attention the child is likely to receive during its growth would be such as to influence the shape of its skull, as well as the rest of the body.

With some nations it has been the custom to artificially mould the heads of infants; but observers have never been able to discover any bad effects produced thereby. On the other hand, marked deformities have coexisted with perfect sanity and exalted character.

Another anomaly, supposed to be frequently present in criminal skulls, is the persistence of the frontal suture (sutura metopica). BORDIER claims to have observed this in 19 per cent., LOMBROSO in 12 per cent., but WELCHER has observed the same condition in 10 per cent. of normal skulls, and ANUTSCHIN, in an examination of 16,000 skulls, found the frontal suture persistent in 8 per cent. among Europeans; in 2 per cent. among American Indians; in 5 per cent. among Mongolians, and in 1 per cent. among Australians. From his observations he concludes that the higher the race the more frequent the presence of the frontal suture.

The inter-parietal bone, which results from a persistence of the suture between the upper and lower portions of the occipital bone at the superior curved line, and which has been named the Inca bone, because it is so commonly found in the skulls of Peruvians (60 per cent.), is observed in only 10 per cent. of normal Europeans, and in 10 per cent. of convicts, while it has been found in 30 per cent. of the insane. Sometimes an additional (pre-interparietal) bone is formed from the triangular Inca bone by a transverse suture.

A strongly developed crista frontalis along the inner surface of the frontal bone is often noted in criminal skulls. While it attains a height of 8 mm. in only 9 per cent. of normal individuals, it reaches this size in 20 per cent. of criminal skulls. This peculiarity is supposed to be due to premature union of the two halves of the frontal bone, and is common among the insane.

Wormian or sutural bones are frequently found in criminal skulls. SILVA observed them in 46 per cent. of criminals; LOMBROSO in 32 per cent.; SOMMER in 68 per cent. of insane, and in 28 per cent. of normal individuals; and RANKE in 20 per cent. of normal skulls. They are found in all of the sutures, but most commonly in the lambdoid.

A fossa is sometimes present on the inner surface of the occipital bone in the median line, and is called the fossa occipitalis mediana. LOMBROSO found it present in 16 per cent. of convict-skulls, and in only 4 per cent. among normal individuals. Among the lower races it occurs frequently, in the proportion of from 20 to 40 per cent. It is present normally in the lower primates, especially in the lemurs, but it is not found in the higher anthropoid apes. It serves for the lodgment of the middle cerebellar lobe, the hypertrophied vermis of the cerebellum. It has been found in 22 per cent. of the insane. BIELAKOW considers this middle fossa a certain sign of atavism. It is usually triangular in form, and varies greatly in size.

A retreating forehead is found in 36 per cent. of criminals, and in 18 per cent. of normal individuals, but RANKE has shown that this is an ethnic character. The Middle Germans are distinguished from the South Germans by a more distinctly retreating forehead, yet as a class the former are no more criminal than the latter.

A strongly-developed and projecting superciliary ridge was found in 58 per cent. of the 206 criminal skulls examined. This feature, combined with large orbits, is present in 25 per cent. of normal men, and in 29 per cent. of normal women, while it is found in only 19 per cent. of female criminals. The criminal woman shows the various anomalies less often than the criminal man, and many of these even less often than the normal woman.

The foregoing are the principal characteristics of the so-called criminal cranium. Other anomalies are met with, but less constantly than those mentioned. Most often several anomalies are found in the same skull.

It is only as they affect the structure or function of the brain that they can be considered as of any significance, but unfortunately all researches on the criminal brain have as yet failed to show where the centers for honesty, amicability, and chastity are localized. We are not yet able to discover a man's religious belief by physical diagnosis, and crime is often as much a matter of belief as is religion.

The criminal, the anti-socialist of one generation is worshipped as a god by the next, As HEGER well stated the case before the Congress of Alienists, held a few years ago at Antwerp: "The grade of intelligence and the social worth of men depend upon factors not to be determined by the cubic contents of the skull or the measurements of the brain." Ethically considered, we doubt if there is much

difference between the man who steals a ride on a freight car and the man who "corners" a real or fictitious market. Yet, socially the one is called a thief, and is committed to prison, while the other is termed a shrewd financier, and sent to the Senate to act as representative of an honorable constituency.

There can be no objection to the record of careful observation by criminal anthropologists, but when they undertake to compare the convict's skull with that of the man who is able to keep out of prison, because they consider the one criminal and the other honest, they are liable to commit the same absurdities as those who would discover a man of genius by his "bumps."

That criminal acts are often due to a diseased brain, no one can dispute; but crime is likewise caused by ignorance, by necessity, and very often by avarice; only the first cause, disease, is capable of demonstration. If degenerations are more common in the population of prisons than in the population at large, the fact simply means that degenerated criminals are the more likely to be unsuccessful and the less likely to escape conviction, and also the more likely to die in prison, and thus come to the notice of investigators.

In 1892, in the State of Pennsylvania, 15,669 persons were indicted for crime by the grand juries, and tried in court, and of these only 3669 were convicted and sent to prison. Who are the criminals?

OPHTHALMOLOGY AND THE EDINBURGH CONGRESS.

NEARLY three years ago we called attention to the fact that so far as a large part of the practice of physicians in general is concerned a great medical discovery is widely ignored.[1] It is still alarmingly frequent, even in the United States, that the refractive and muscular anomalies of the eye as sources of general reflex trouble are overlooked, although ophthalmologists and neurologists have been persistently emphasizing the lesson for many years, and have been offering the most convincing proofs that in doing so they are neither hobby-riders nor wilful perverters of the truth. In many centers and by many physicians the recognition of the truth is a matter of routine practice, but even with us a vast deal remains to be done before the truth is in danger of exaggeration.

[1] MEDICAL NEWS, December 12, 1891, p. 691.

It is, however, most strange that in Europe, whence come at least the fundamental principles of ophthalmic science, in this birthplace of refraction, the actual application of these principles falls far behind that of the usage in our country. It would also appear that no amount of iteration and reiteration of the fact of this neglect is of much avail in bringing about any admission of it on the part of many of our European *confrères*. Errors of muscular balance that do not induce strabismus are not usually looked for, and unless an error of refraction is strikingly large it is often ignored. Personal inquiries recently made of opticians in several large English cities brought out the admission that a large, a very large proportion of all prescriptions for glasses are for non-astigmatic lenses and without anisometropic differences. In asking for the loan of a case of test-lenses of a large London optician it seemed a little strange to him that the cylindric lenses were wanted quite as much as the spherical.

An American oculist who fails to test for heterophoria every pair of eyes examined would soon find himself—where he is! But it is doubtful if the practice is very general abroad.

A noteworthy proof of these facts was presented at the medical congresses recently held in England. At the meeting of the British Medical Association at Bristol the authors of papers on refraction and reflex ocular neuroses were indeed permitted to read their communications, but not a word of discussion upon them was allowed. At the International Ophthalmological Congress held at Edinburgh papers of the same character were put off till the last hour of the session; the readers were, we were about to say, bullied into silence or an equally ridiculous condensation, and the President permitted himself to announce that as these papers contained nothing new all discussion must be omitted. Many members of the Congress will long carry with them a vivid remembrance of the last hour of the Congress, a remembrance curiously compounded of amusement, astonishment, and disgust.

It is not permissible to impute unworthy motives, but it is a fact worth mention that the contributors thus dismissed with what seemed flagrant discourtesy were Americans who had been invited to contribute, and who had come a far greater distance than other members. Much has been written concerning the geographic distribution of disease, but little has been written of the more interesting geography of medical prejudices and insularities.

It might with justice be asked, either generally of most medical gatherings, or specifically of the Edinburgh Congress, that if only the absolutely new were allowed expression, and useless prolixity were always tyrannically silenced, what would then be the size of the printed volumes of the *Transactions?*

If one visits a foreign eye-hospital it is not dreamed that anything but operations (and most operations, it goes without saying, are cataract-operations) are interesting or worth witnessing. Every conceivable shade of difference in operating for cataract is emphasized, even harped upon, until one is both very much amused and very much bored, and one asks himself if ophthalmology begins with this millimetric Niagara and ends with a stick of cupric sulphate. Likewise in congresses, as one humorous and human speaker at Edinburgh said, everyone comes loaded to the mouth with descriptions of his own peculiar method of operating upon cataract, and returns home fully convinced that that method is absolutely the best, and determined to make no change whatever in it. In these meetings the cataract-controversy rolls on without check or limit until some one whispers granular lids, and the fugue then takes a new movement and lease of life.

Despite all minor differences and dissensions, there is among a large number of excellent and conservative oculists a perfect unanimity of conviction, buttressed by incontrovertible clinical demonstrations:

1. That the eye is a frequent source of functional systemic disturbance, headache, and multiform nervous and nutritional abnormality.

2. That errors of refraction, often of slight degree, are the starting-points of these reflex neuroses, as also of localized ocular diseases.

3. That muscular imbalance also is a frequent cause of the same disturbances.

It would appear natural that, in view of the evident perfection of technique and the wearing out of interest in the old problems of ophthalmology, eye-specialists would welcome an extension of their science into new fields, where, moreover, trustworthy testimony declares there is much new truth to be learned on our part and much old disease to be relieved on the part of patients.

Discourtesy to individuals and even to nations may readily be pardoned, but discourtesy to medical progress is genuine sin against the scientific Spirit, and is not to be forgiven. Let us hope that when the next Ophthalmic Congress meets, six years from now, and in the country of Donders, it will be more considerate of a medical truth and of those who urge its value.

EDITORIAL COMMENTS.

Notes upon the Meeting of the British Association for the Advancement of Science.—The meeting of the B. A., as it is colloquially called, held at Oxford last month, was a most excellent one, as all who were present agree. The number attending was 2321; the receipts, $10,675. The gathering was a model of dignified and sincere interest in knowledge, of freedom from "politics," of large-hearted and kind-hearted hospitality, both personal and collective, and it was held in a "city of colleges," of learning, and of antiquarian and esthetic interest unsurpassed in the world. If one wearied of the strain and excitement of new scientific thought and discovery looking forward into dim futurity, a step brought him to walks and meadows knowing nothing of these things, or to cloisters and chapels looking backward to a dim antiquity.

Most happy was the presidential address of the Marquis of Salisbury on the unsolved riddles of science, or, as one might name it, the nescience of science. Three entities lie at the foundation of all existence and all knowledge: matter (atoms), life, and the ether. With all the discoveries of science, with all the progress of the human intellect, no hint or glimpse has been gained as to the origin of any of these. The mind cannot even think of any theory of their origin. It was a happy thought of this perfect type of man of the world, as well as, in many senses, master of the world, to tell the greatest gathering of scientists how things scientific look to that world. There are few things more ridiculous than the cock-sure "evolutionist" and "scientist" who, puffed up with his "little dangerous knowledge," thinks all mysteries have been solved, and that all things are "explained" by mechanics and the "struggle for existence." Perhaps even he may learn the need of some intellectual modesty from the official assurance that "we live in a small bright oasis of knowledge, surrounded on all sides by a vast unexplored region of impenetrable mystery." The chancellor of England's greatest institution of learning, the president of the world's greatest scientific body, quotes with hearty assent the following words of the world's greatest living physical scientist:

"The hypothesis of natural selection does not contain the true theory of evolution, if evolution there has been in biology. . . . I feel profoundly convinced that the argument of design has been greatly too much lost sight of in recent zoölogical speculations. Overpoweringly strong proofs of intelligent and benevolent design lie around us, and if ever perplexities, whether metaphysical or scientific, turn us away from them for a time, they come back upon us with irresistible force, showing to us through Nature the influence of a free will, and teaching us that all living things depend on one everlasting Creator and Ruler."

As teachers of physiology, hygiene, and therapeutics, the words also warn us of a truth and a duty too often forgotten or denied.

Before this our readers have doubtless learned of the announcement of the new element discovered by Lord Rayleigh and Professor Ramsey, and made public by them at the Oxford meeting. The secret had been well kept, but it was our good fortune to be present at the meeting of Section B when the communication was made, and to talk with the authors afterward concerning their great discovery. It is indeed most noteworthy that a new element should have existed in the air that chemists have been breathing and investigating since science began. The discovery will perhaps win the Smithsonian Institution prize of $10,000. The authors do not therefore give a name to the "gas," nor even do they publicly state that it is a new element they have discovered. Despite some adverse criticism and the evident need of confirmation by other researches, there can be but little doubt of the elemental nature of "crypton," as the "gas" will probably be named. It is present in mechanical mixture with the nitrogen of the air in the proportion of about 1 per cent., and has a density of a little less than 20. It is quite impossible to foresee what may be the practical uses of the discovery to hygiene and to medicine. Discoveries usually lead to uses different from what the discoverers dreamed of, as, for example, the history of tuberculin proves; and we may soon learn of most practical benefits to the world arising from some ingenious application of the knowledge of this small amount of apparently inert gas, which, hitherto unknown to physiologists, we have been breathing every minute of our lives.

Many good papers were read having a more or less important relation to medicine. We have space to allude to but a few.

DR. A. BERNSTEIN, of Berlin, read a paper on "The Chemical Action of a New Bacterium in Milk." This bacterium, which is very small, has the property of rapidly making sterilized milk transparent, the change beginning at the top and proceeding downward. No gases are evolved and no coagulation takes place. The casein and other proteids in the milk are converted into peptone. In order to apply this fact to the production of peptonized milk, useful as an article of food, a small quantity of milk in which the bacteria are growing is mixed with a considerable quantity of fresh milk from which the cream has been removed. The mixture is kept at a suitable temperature, and fresh quantities of milk are added from time to time. When the whole liquid has become transparent it is boiled in order to kill the bacteria and coagulate any casein that remains unaltered. The product is a reddish, slightly acid liquid, with an aromatic odor. By adding along with the bacterium some pure yeast that has the property of attacking milk-sugar an alcoholic preparation can readily be obtained. In all probability the same or a similar bacterium plays an essential part in the ripening of cheese.

MR. L. COBBETT, in a paper on "Local Immunity," described certain experiments in which he had found that tissues which had once been the seat of erysipelas retained the power of reacting more energetically than normal tissue when inoculated with the sterilized products of cultures of the erysipelas-organism. He suggested that immunity might be explained as being due to an ability on the part of the tissues to react to chemic substances produced by bacteria.

DR. LORRAIN SMITH and MR. TREVITHICK contributed a paper on "A Form of Experimentally Produced Immunity," in which they described the results of experiments undertaken by them in order to test the influence of various conditions in producing susceptibility to disease. In cases in which an irritating powder had been injected into the pleural cavity of animals such animals were subsequently found to be more refractory to certain diseases.

To the anti-vivisectionist movement Professor Schäfer in his presidential address credits the following results: 1. The establishment of the Physiological Society; 2, the passing of the Cruelty-to-Animals act, which stands as a guarantee that the excesses formerly charged to physiologists are not possible; 3, the establishment of the Association for the Advancement of Medicine by Research; 4, the re-establishment of the Section of Physiology of the British Association. These results Prof. Schäfer ascribes to the anti-vivisectionists on the principle that "the blood of the martyrs is the seed of the Church." It would almost seem to be the logic of the situation, therefore, that vivisectionists should join hands with the "antis" in order to stimulate scientific research. We doubt if scientific enthusiasm and research has had such an ignoble origin.

When treating of the attraction-particle, the thyroid gland, the supra-renal capsules, and the pancreas, Prof. Schäfer is more interesting and convincing:

"There is no organ of the body, however small, however seemingly unimportant, which we can presume to neglect; for it may be, as with the supra-renal capsules, the thyroid gland, and the pancreas, that the balance of assimilation and nutrition, upon the proper maintenance of which the health of the whole organism immediately depends, hinges upon the integrity of such obscure structures; and it is the maintenance of this balance which constitutes health; its disturbance, disease. Nor, on the other hand, dare we, as the investigation of the attraction-particle has shown, afford to disregard the most minute detail of structure of the body.

> 'All is concenter'd in a life intense,
> Where not a beam, nor air, nor leaf is lost,
> But hath a part of being.'"

Sweat-shops and Smallpox in Chicago.—We recently took occasion to point out the likelihood of transmission of infectious disease through the intermediation of so-called sweat-shops,[1] and the first special report by the Chief Factory Inspector of Illinois on the epidemic of smallpox that recently prevailed in Chicago brings confirmation of the views then expressed.

The factory-laws of the State of Illinois provide that in case articles manufactured in sweat-shops or factories within the State are found by the factory-inspector to be infested with vermin or contaminated by infectious or otherwise dangerous material, these articles shall be destroyed by the local health-officer upon the demand of the chief inspector.

It appears from the report that there are 950 licensed sweat-shops for the manufacture of clothing in Chicago, and about 25,000 other rooms in which garments are made. The principal factory-inspector, with ten assist-

[1] THE NEWS, June 23, 1894, p. 697.

ants, had enough to do previous to the epidemic in securing compliance with the provisions of the law regulating child-labor. In the fall of 1893 a few cases of smallpox appeared in Chicago. In January there was a real epidemic, confined almost exclusively to a radius of ten blocks surrounding the smallpox hospital. This institution is in the hands of a charitable organization, but is practically farmed out by the political machine, and is wholly beyond control of the Health-Commissioner, both from a medical and from a sanitary standpoint. This institution undertook to care for so many cases and the place became so overcrowded, and the death-rate became so appalling, that the knowledge of its condition caused the people to refuse to permit the removal of members of their families who happened to be stricken with the disease. Then the authorities tacked yellow cards, usually in an inconspicuous position, upon the buildings in which cases arose, and allowed the disease to spread for a month or two. Under these circumstances, the duty of the factory-inspector evidently called for the protection of consumers of ready-made clothing from the dangers of smallpox contagion carried by the clothing made in sweat-shops in which persons were suffering from this disease. The inspector therefore informed 176 Chicago tailors and wholesale dealers in clothing, that have their work done by sweaters, that smallpox was epidemic and that there was danger of infection, and also called attention to the provisions of the law for the destruction of infected goods. Only a few of the manufacturers paid any attention to the suggestion of the inspector, so that it became necessary to adopt other means to secure compliance with the spirit of the law. The first goods were destroyed on May 12th by a health-commissioner under a threat of mandamus.

There does not appear to have been that co-operation between the local health-officers and the State Board of Factory-Inspection that the exigencies of the case demanded. In the meantime smallpox spread in various parts of the Western United States. On this account the various State boards of health were aroused, and a conference was held in Chicago on May 10th. The result of this conference was, strangely enough, the contribution of a fund of several thousand dollars by the manufacturers of clothing that employed Chicago sweaters, to be expended in the inspection of sweat-shops and in vaccinating their workers, the disbursement and the work to be under the direction of the Illinois State Board of Health; on condition that the State of Illinois, through its State Board of Health, guarantee the non-infective condition of the clothing manufactured in the sweat-shops of Chicago. The report of the factory-inspector shows that this inspection was wholly ineffectual, so far as securing to the consumers of clothing immunity from the disease was concerned, and the report is the strongest argument that has lately been put forth for the total abolition of sweat-shops' work.

It should be the duty of every medical man in the country, as well as in the city, to demand the protection of his families from the danger of small-pox and other infectious diseases, by such legislation as will require all garments to be labelled to indicate the condition under which they are made; then it would be possible for purchasers to demand factory-made goods and to refuse their patronage to stores through which infection might come with sweat-shop-made clothing Local boards of health could thus interdict the sale of this dangerous commercial product.

The Insidious Reading-notice.—We regret to see the reading-notice (and of nostrums at that) creeping into the otherwise clean and interesting columns of our respected cotemporary *The Canadian Practitioner*. It is but recently that we had occasion to congratulate the *Practitioner* on the elimination of interleaved advertisements from among the pages of its text. We were encouraged to hope that its example would not be without influence upon other journals and that its action might be viewed as a promise of a finer discrimination in general in the acceptance of advertisements by medical journals.

SELECTION.

THE NOSE AS A SOCIAL TEST.

A VERY interesting investigation into the habits, customs, physical characteristics, and religion of the natives of Northern India, initiated by Mr. H. H. Risley, and carried on under his supervision by the Indian Government, may be mentioned on account of the illustration it affords of the value of exact anthropometric methods in distinguishing groups of men. In Mr. Risley's examination the nose, instead of being vaguely described as broad or narrow, is accurately measured, and the proportion of the greatest width to the length (from above downward), or the "nasal index," as it is termed (though it must not be confounded with the nasal index as defined by Broca upon the skull), gives a figure by which the main elements of the composition of this feature in any individual may be accurately described. The average or mean nasal indices of a large number of individuals of any race, tribe, or caste offer means of comparison which bring out most interesting results. By this character alone the Dravidian tribes of India are easily separated from the Aryan. "Even more striking is the close correspondence between the gradations of racial type indicated by the nasal index and certain of the social data ascertained by independent inquiry. If we take a series of castes in Bengal, Behar, or the North-western Provinces, and arrange them in the order of the average nasal index, so that the caste with the finest nose shall be at the top, and that with the coarsest at the bottom of the list, it will be found that this order substantially corresponds with the accepted order of social precedence. The casteless tribes who have not yet entered the Brahmanical system occupy the lowest place in both series. The fisher castes are a trifle higher in the scale; the pastoral, the cultivating, and a group of cognate castes—from whose hands a Brahman may take water—follow in due order; and from them we pass to the trading and the landholding classes, and the upper crust of Hindu society. Thus, it is scarcely a paradox to lay down as a law of the caste organization in Eastern India that a man's social status varies in inverse ratio to the width of his nose." The results already obtained by this method of observation have been so important and interesting that it is greatly to be hoped that the inquiry

may be extended throughout the remainder of our Indian Empire.—*The Presidential address of* SIR W. H. FLOWER, F.R.S., *on Anthropology, before the British Association for the Advancement of Science.*

REVIEWS.

THE AFTER-TREATMENT OF CASES OF ABDOMINAL SECTION. By CHRISTOPHER MARTIN, M.B. (Edin.), F.R.C.S. (Eng.), Surgeon to the Birmingham and Midland Hospital for Women. 8vo, pp. 48. London: Simpkin, Marshall, Hamilton, Kent & Co., Limited, 1894.

THE author of this little work tells us in his preface that it embodies the experience gained in the management of over one thousand cases, mainly in association with Mr. Lawson Tait. Hence it will not surprise the reader to find that the views and methods presented bear more or less distinctly the impress of that bold and skilful surgeon. They are very decided and very forcibly put, and may be read with profit not only by beginners in abdominal surgery but by many who are more advanced.

On one or two points we take issue with Mr. Martin. In speaking of drainage he mentions a number of conditions requiring this measure, and among them "where, from any cause, free oozing of blood is taking place into the peritoneum," or, again, "where there is reason to believe the bowel or the bladder has been injured." We doubt the propriety of closing the abdominal wound while blood is escaping freely into the cavity; and we think that if the surgeon suspects damage to the bowel or the bladder he ought to investigate it, and if possible repair it. Of course, there are exceptional instances in which such risks must be run in the endeavor to avoid greater dangers which are imminent; but they are, fortunately, very rare.

Again, our author several times speaks with favor of the injection of "a weak solution of perchlorid of iron" into the peritonial cavity to check bleeding. How strong a solution he would use he does not state; but we cannot regard the practice as one to be commended.

As a whole, this book must be welcomed as a very valuable summary of the results of a large experience in abdominal surgery.

A MANUAL OF DISEASES OF THE NERVOUS SYSTEM. By W. R. GOWERS, M.D., F.R.C.P., F.R.S. Second edition, revised and enlarged. Vol. II. Diseases of the Brain and Cranial Nerves, General and Functional Diseases of the Nervous System. Philadelphia: P. Blakiston, Son & Co., 1893.

THE first volume of this edition of Gowers' *Manual* has already been favorably reviewed in THE MEDICAL NEWS, so that it will only be necessary to briefly call attention to the second volume, the revision of which, like that of the first, is not merely in name. The anatomy and physiology of the cranial nerves and of the pons and oblongata are particularly well presented; and the entire discussion of the structure and functions of the brain, including localization, is just of the character calculated to assist the student and general practitioner. Neurasthenia is not discussed from the American standpoint. Gowers believes "there is no more justification for regarding neurasthenia as a definite malady, as a disease due to a definite morbid process, or even as an affection characterized by a well-marked group of symptoms, than there is for adopting a similar course with regard to 'debility' among general diseases." While not fully in accord with this view, it is interesting and healthful to read his brief discussion of the subject of neurasthenia, at the same time having in mind the elaborate monographs of Beard and Cowles.

No matter what may be its excellences, some fault can always be found with a book. The numerous illustrations, although nearly all are well calculated to teach what the author intends, have not been well reproduced. In this, as in the first volume, a few affections, such as akromegaly, erythromelalgia, and angio-neurotic edema, which are now generally discussed in neurologic textbooks and treatises, are omitted. This volume, as the preceding one, shows that the author is not merely a clinician, but also a practical pathologist, illustrations of his own pathologic work appearing in many places. Although by no means overlooked, bacterial pathology has not, perhaps, received full consideration. The present volume contains 1050 pages of printed matter, not including the index, and with the preceding volume makes a work of about 1700 pages. The clinical portion can scarcely be surpassed. The book continues to be what it has often been pronounced, the best text-book on nervous diseases in any language. As a practical work for students and practitioners it has held first place for nearly ten years, and will continue to do so for many years to come.

THE ETIOLOGY OF OSSEOUS DEFORMITIES OF THE HEAD, FACE, JAWS, AND TEETH. By EUGENE S. TALBOT, M.D., D.D.S. Third Edition. 8vo, pp. 487. Chicago: W. T. Keener Company.

THE fact that a book devoted entirely to the deformities of the head and teeth should have entered upon its third edition is an evidence that the dental profession has devoted a great deal of persistent labor to these subjects. While the work primarily thus appeals to a special class of practitioners, medical men cannot fail to be impressed with the fact that a thorough knowledge of the forms of the jaws, teeth, and related parts is essential to a proper conception of the causes of variations in the anatomy of the head.

The author rejects the opinion generally held that irregularities of the teeth and jaws are the results of local conditions. A number of original devices for measuring the hard palate are described, but the reflection cannot be avoided that this portion of the work would have been strengthened if the methods pursued by others, notably by Virchow, Turner, and Flower, had been noted. Want of uniformity in this and other matters in detail of craniometry make it almost impossible to apply the results obtained by one author to those of others. Usually we might have expected in a work of the character before us a judicial expression upon the entire matter of jaw-measurements. In like manner we would naturally look for some account of the contributions of such observers as Welcker and Aeby. The work is extensively illustrated.

A MANUAL OF INSTRUCTION IN THE PRINCIPLES OF PROMPT AID TO THE INJURED; Including a Chapter on Hygiene and the Drill Regulations for the Hospital Corps, U. S. A. By ALVAH H. DOTY, M.D., Major and Surgeon, Ninth Regiment N. G., S. N. Y., late Attending Surgeon to Bellevue Hospital Dispensary, N. Y. Second edition, revised and enlarged. 8vo, pp. xvi, 304. New York: D. Appleton & Co., 1894.

As this work is designed for the instruction of non-medical rather than medical persons, the author has very properly preceded the consideration of his subject by an elementary, but none the less useful, consideration of the bony skeleton, and a short sketch of the physiology of the different organs. The main object of the book is satisfactorily attained by that portion devoted strictly to "Prompt Aid to the Injured," and it can be studied with advantage by those officials of military and semi-military organizations whose duties render them liable to be the first to come to the aid of the injured.

In the section on poisons the use of the somewhat antiquated stomach-pump is advocated, although in the same paragraph the use of the stomach-tube as a substitute for the stomach-pump, when the latter cannot be obtained, is very well described; and it is certainly a much better method of emptying the stomach of its contents.

The author has included a section upon hygiene, and the usefulness of his work is greatly augmented by the addition of the drill-regulations for the Ambulance Corps of the U. S. Army.

AËRO-THERAPEUTICS, OR THE TREATMENT OF LUNG-DISEASES BY CLIMATE. Being the Lumleian Lectures for 1893, with an Address on the High Altitudes of Colorado. By CHARLES THEODORE WILLIAMS, M.A., M.D., Oxon, F.R.C.C. London: Macmillan & Co., 1894.

THE feeling of partial disappointment with which one finishes the perusal of this both timely and instructive volume is no doubt due to the too comprehensive nature of the title. The term "Aëro-therapeutics" implies much that is neither touched upon nor intimated in these lectures. On the other hand, atmospheric influences constitute but one of many factors discussed by our accomplished author. "The Climatic Treatment of Tuberculous Patients," while somewhat trite, would have been an accurate and therefore not at all misleading title for the work.

At the same time, we heartily thank Dr. Williams for thus aptly and freshly presenting a subject which is rapidly increasing both in interest and importance, and we may at some future day take occasion to discuss it more adequately than can be done within the limits of a brief and formal review. It may be added that the work is a valuable addition to our rather meager literature on the subject of climatic therapeutics.

NEWS ITEMS.

The Mississippi Valley Medical Association will hold its twentieth annual meeting at Hot Springs, Ark., November 20, 21, 22, and 23, 1894.

The Association is now in a more prosperous condition than ever before, and no efforts will be spared to make the meeting at Hot Springs not only the largest but the most interesting and profitable ever held. Many valuable papers by most excellent authors have already been promised.

A New Postal Regulation.—Existing postal regulations have been so amended that periodic bulletins issued by State Boards of Health shall be admitted to the mails as second-class matter and be subjected to corresponding rates of postage.

A Hospital for Tuberculous Patients, in Toronto, will probably shortly be established, a public-spirited citizen, Mr. W. J. Gage, having offered to contribute $25,000 for the purpose.

The Elms Hospital for Women, of Detroit, announces a course of fifteen lectures in connection with the work of its Training School for Nurses.

BOOKS AND PAMPHLETS RECEIVED.

A New Dynamometer for Use in Anthropometry. By J. H. Kellogg, M.D. Reprinted from Modern Medicine, 1894.

Arbeiten aus Dr. Unna's Klinik für Hautkrankheiten in Hamburg, 1892–1893. Sonderabdruck aus der Berliner klinischen Wochenschrift, Berlin, 1894.

Cataract. By T. Hilliard Wood, M.D. Pamphlet. Nashville: Cumberland Presbyterian Publishing House, 1894.

A Bacteriological Study of Four Hundred Cases of Inflammation of the Throat, Occurring in Diphtheria and Scarlet Fever, with Especial Reference to Pathogenesis. By John Lovett Morse, A.M., M.D. Reprinted from the Medical and Surgical Reports of the Boston City Hospital, 1894.

Expert Medical Testimony as Illustrated in some Recent Criminal Cases in the Courts of this City. By N. S. Davis, M.D., Chicago. Reprinted from the Chicago Clinical Review, 1894.

The Proceedings of the Third Annual Meeting of the Association of Military Surgeons of the United States. Held in Chicago, Ill., August, 1893. St. Louis: Buxton & Skinner, 1894.

Report of the Managers of Cooper Hospital, Camden, N. J. Camden: A. J. Milliette Publishing Co., 1894.

Fractures of the Body of the Jaw. By H. H. Vinke, M.D. Reprinted from the Medical Fortnightly, 1894.

Bulletin 65, April, 1894. Cornell University Experiment-Station. Veterinary Division. Tuberculosis in Relation to Animal Industry and Public Health. By James Law. Published by the University, Ithaca, N. Y., 1894.

Sixteenth Annual Report of the Presbyterian Eye, Ear, and Throat Charity Hospital. Baltimore, Md.: John S. Bridges & Co., 1894.

U. S. Bureau of Education. Catalogue of "A. L. A." Library. 5000 Volumes for a Popular Library Selected by the American Library Association and Shown at the World's Columbian Exposition. Washington: Government Printing Office, 1893.

Annual Reports of the Managers and Officers of the New Jersey State Hospitals for the Year Ending October 31, 1893. Trenton: The John Murphy Publishing Co., 1893.

Laparo-Hysterotomy: Its Indications and Technique. By N. Senn, M.D., Ph.D., LL.D. Reprinted from the American Journal of the Medical Sciences, 1893.

Proceedings and Addresses at a Sanitary Convention, held at Albion, Mich., December 6 and 7, 1887. Lansing: Thorp & Godfrey, State Printers and Binders, 1888.

Transactions of the Southern Surgical and Gynecological Association. Volume VI. Sixth Session, held at New Orleans, November, 1893. Published by the Association, 1894.